

ALAGAPPA UNIVERSITY

(Accredited with 'A' Grade by NAAC)
Karaikudi 630 003



DIRECTORATE OF DISTANCE EDUCATION

MBA (IB)

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Paper - 4.5

Multinational Financial Management

ALAGAPPA UNIVERSITY

(Accredited with 'A' Grade by NAAC)

KARAIKUDI - 630 003, TAMILNADU

DIRECTORATE OF DISTANCE EDUCATION

M.B.A.
(International Business)



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Multinational Finance Management

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MULTINATIONAL FINANCIAL MANAGEMENT

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UNIT-I

MULTINATIONAL FINANCE: CONCEPT& FUNCTIONS

Learning objectives are: To know:
• Concept & importance of Multinational Finance • Scope of Multinational Finance • Types of Multinational Finance: Multilateral, Bilateral, Direct, Indirect, Macro etc. • Financial Management: Functions, Significance, Development, nature, etc. • Multinational Financial Management Vs Domestic Financial Management • Risk and Return trade off : Concept, Measurement, CML, SML, etc. • Aspects of Multinational financial environment: Institutions, Instruments, etc. • Multinational Financial System: Markets, Foreign exchange, etc. • Global Financial Markets – New York, Tokyo, London & European Union

1. CONCEPT & IMPORTANCE OF MULTINATIONAL FINANCE

Multinational finance is borderless flow of finance amongst different entities. Multinational finance involves search for finance that does not stop at national borders or boundary lines but spans around and goes beyond national territories. Global finance similarly, involves search for investment opportunities anywhere across the globe. So, Multinational finance can be seen in terms of territory free demand for finance by firms, governments or individuals and supply of the same by firms, governments or individuals.

Global trade governed by the system of comparative costs, leads to multinational finance as well since investment follows trade to leverage competencies gained through trade. The early twentieth century saw the growth of nationalist forces first on the political plane and then on the economic-finance-trade planes as well. While nationalist feelings are fine in the political arena, the same are not so in the economic-finance-trade contexts in view of economic interdependence of nations. And this was realized in the last quarter of

the 20th century and that globalist feelings, replacing the nationalist feelings on economic-finance-trade planes emerged almost all over the world, including China, Soviet Union and prominent East European nations, which were core communist ideology driven economies. This is the re-dawn of the legacy of Adam Smith, the greatest political economist of the 18th century.

Economics, trade and finance know no national borders. By their nature these are not confinable through man-made fetters for long time. Economics, trade and finance are truly international, multinational, global and transnational. We may say the continents of the world and some nations are divided by waters. But, beneath the depths of even the deepest Pacific Ocean, land mass unifies continents and countries. So, geographical divisions based on political aspects are man-made. But the nature unifies. And this applies to global economy, of which global finance is an integral part.

1.1. Concept of Multinational Finance

Multinational finance can be taken as the sum total of multinational financial resources available for conversion into physical or knowledge based investments. Thus it represents investible funds and investments made out of the same.

According to Prof. Selvam, Multinational Financial Management is defined as the "application of Principles and Practice of the General management functions namely, Planning, Organizing, Directing, Co-coordinating and Controlling the Operative functions of Financial Management namely, Cross border Investment, Cross border financing and Cross border servicing of Capital".

Multinational finance can be taken to mean the market mechanism that facilitates global investments and financing. A market mechanism is a must for mopping up of investible funds and directing the same into profitable investments. That is, multinational financial market comprising financiers and investors or creditors and borrowers is a prerequisite of efficient global finance.

Multinational Financial Management is management of finance in a multinational context. It can be seen in different shades as below:

i. Multinational Finance in a *broader sense refers to using 'multinational finance for multinational development'*. Multinational finance here refers to: multilateral finance, bilateral finance, unilateral finance, private finance (individual and

institutional), governmental finance, portfolio finance, direct finance, equity finance, debt finance and so on. Managing the procurement and investing and servicing the cross-border finance are the core aspect of multinational financial management.

ii. Multinational Finance in a *via-media sense refers to the managing the affairs of a multinational/regional financial system* encompassing the multinational finance markets – the institutions, instruments and interactions' involving multinational mobilization of capital and multinational spread of investment.

iii. Multinational Finance in a *narrow sense refers to managing entity specific tapping of multinational finance* and /or *making multinational investment.*

1.2 Importance of study Multinational Financial Management

We are now living in a world where all the major economic functions, i.e., consumption, production, and investment, are highly globalized. It is thus essential for financial managers to fully understand vital multinational dimensions of financial management. This global shift is in marked contrast to a situation that existed some thirty ago, that is prior to 1980. Prior to 1980 multinational finance prevailed in the world, but most of that was the legacy of multilateral capital. Since 1945 with the establishment of World Bank and International Monetary Fund and their affiliates multilateral form of multinational finance went into developmental and business projects in the member countries. Since 1980s, there is a new thrust. This is a great deal of private capital flows across nations from MNCs, Investment Institutions, Mutual funds, Banks, Non-resident citizens and non-residents. There is opportunity for everyone who knows the style of tapping the global finance and investing the same. Since early 1990s Indian and Chinese companies have been tapping global finance very eloquently. Since 2006 Indian companies have started acquiring big MNCs amidst stiff competitive bids from global competitors. These and other developments have been unfolding many opportunities as well as threats. Hence study of multinational finance pays one well.

2. SCOPE OF MULTINATIONAL FINANCE

As a subject of study, the scope of multinational finance is ever increasing. As the drive for liberalization, privatization and globalization (LPG)

gathers momentum further and further, the scope of multinational finance is elastically increasing.

Institutions providing Finance: First of all, multinational finance can be looked in terms of *the class of bodies that provide* the finance. Are they multilateral bodies like World Bank or IMF or private firms and Individuals? Coming to investments effected, are the investments entrepreneurial, i.e., direct or portfolio or indirect? Macro level finance such as financing developmental/reconstruction activities undertaken by Governments or micro level finance such as funding a specific firm? Multinational business finance and multinational state finance are other components.

Instruments of finance: Second, multinational finance deals with *instruments of finance* - equity or debt. Direct equity, Global Depository Receipts (GDRs), American Depository Receipts (ADRs), Indian Depository Receipts (IDRs), etc are the equity forms of finance. The debt securities and their modes are many and diverse. The comparison and contrasts between global equity and global debt is a part of multinational finance studies.

Classes of investments: Third, multinational business finance deals with the *classes of investments* effected. Foreign Direct Investment (FDI) and Foreign Portfolio Investments (FPI) are prominent types. The nature, features, need and significances of global investments have to be brought into the ambit of multinational finance.

Evaluation of techniques for fixed asset investments: Fourth, multinational business finance involves *evaluation of fixed asset investments* or capital budgeting. Appraisal techniques, particularly Adjusted Present Value, International Capital Asset Pricing model, etc., are involved. Handling political and economic risk associated with investments is another aspect of foreign investment.

Current asset - current liability management: Fifth, international *current asset - current liability management*, international inventories management, management of international credits and management of cash and liquidity are further aspects of multinational finance.

Foreign exchange regimes and rates: Sixth, **foreign exchange** (in short, forex) management is an integral part of multinational finance. Types of quotations, trades, instruments, and markets, etc., are involved.

Management of forex risks: Seventh, *management of forex* risk arising out of fluctuations in currency rates and dealing with translation risk, transaction risk and operating risk are an import aspect of multinational finance.

Derivatives segment: Eighth, multinational finance deals with exchange and currency options, futures, swaps and the like. This is the *derivatives segment* of multinational finance, which is unfolding into grand dimensions of financial management at global and national levels.

Taxation and accounting issues: Ninth, multinational finance has to get related with multinational *taxation and accounting issues* and the like. Transfer pricing, leading and lagging payments, etc have taxation and accounting implications with governance contours. Multinational finance thus draws from other disciplines immensely.

Multitude of subjects: Last multinational finance makes use of a *multitude of subjects* in evaluation of projects, programmes and policies. Some of them are mathematics, statistics, information science and operations research. The scope of international finance is thus exhaustive.

In a way scope of multinational finance is also your syllabus.

3. TYPES OF MULTINATIONAL FINANCE

They are different types of multinational finance. These are explained below:

3.1 Multilateral Finance

The term 'multilateral' refers to treaty or agreements among three or more parties or nations. Multinational finance is financial arrangement involving plural number of nations.

Multilateral financial arrangements are intended to render mutual financial assistances amongst nations. Nations are not equally endowed with resources. National are not enjoying same fate all the time. There may be ups and downs. At times of need nations need supporting hands. When the exchange crisis hit the South East Asian nations, during 1997-98, they needed sop and support. When the severe earthquakes/tsunami hit nations, the nations needed support to rebuild the affected fortunes. These are recent examples. In the 1940s, the II World War ravaged economies needed 'assistances. Then came into being the World Bank and International Monetary Fund, driven by the collective action

of the world nations. Later International Development Association, International Finance Corporation, Asian Development Bank, African Development Bank, etc., came into being. All are the results of collective decisions of the member nations to form and benefit form these institutions. These institutions help capital transfer from capital rich countries to capital poor countries. Multinational financial institutions, referred to above, are created *by world nations, for nations and of nations.* These institutions are given birth to by the nations. These are meant for the member nations. The resources of these institutions collectively belong to these member nations.

Multilateral finance is largely debt capital, rather than equity type. Multilateral finance is generally provided to government or quasi-government institutions which may be passed later by them to private sector organizations. Multilateral finance mostly carries *commercial* rate of interest *rather than* a *concessional rate.* Multilateral finance routed through governmental bodies generally is used to fund social and basic infrastructural projects. As debt capital assistances these are, debt servicing obligation vested on the government. Generally a longer initial moratorium period and longer repayment period are the order. To ensure that funds are used effectively, conditionalities are added as strings to the fund provided.

World Bank and International Development Association provide assistances for development covering agriculture, energy, environment, education, health & nutrition, social sector, financial institution development, telecommunication, transportation, urban development, water & sewerage, public sector management etc. Tables 1 and 2 give the operational data of World Bank and International Development Association

Table 1: World Bank Operational Summary Data for Recent Fiscals (Fig. Mn US$)

Head of Items	FY06	FY05	FY04	FY03	FY02
Commitments	14135	13611	11045	11231	11452
Of which development policy lending	4,906	4,264	4,453	4,187	7,384

Number of projects	112	118	87	99	96
Of which development policy lending	21	23	18	21	21
Gross disbursements	11,833	9,722	10,109	11,921	11,256
Of which development policy lending	5.406	3,605	4,348	5,484	4,673
Principal repayments (including prepayments)	13,600	14,809	18,479	19,877	12,025
Net disbursements	(1,767)	(5,087)	(8,370)	(7,956)	(769)
Loans outstanding	103,004	104,401	109,610	116,240	121,589
Un-disbursed loans	34,938	33,744	32,128	33,031	36,353
Operating income	1,740	1,320	1,696	3,021	1,924
Usable capital and reserves	33,339	32,072	31,332	30,027	26,901
Equity-to-loans ratio	33%	31%	29%	27%	23%

Table 2: IDA Operational Summary Data for Recent Fiscals (Fig. Mn US$)

	FY06	FY05	FY04	FY03	FY02
Commitments	9,506	8,696	9,035	7.282	8,068
Of which development policy lending	2,425	2,301	1,698	1.831	2,443
Number of projects	167	160	158	141	133

Of which development policy lending	30	32	23	24	23
Gross disbursements	8,910	8,950	6,936	7,019	6,612
Of which development policy lending	2,425	2,666	1,685	2,795	2,172
Principal repayments	1,680	1,620	1,398	1,369	1,063
Net disbursements	7,230	7,330	5,538	5,651	5,549
Credits outstanding	127,028	120,907	115,743	106,877	96,372
Un-disbursed credits	22,026	22,330	23,998	22,429	22,510
Un-disbursed grants	3,630	3,021	2,358	1,316	148
Development grant expenses	1,939	2,035	1,697	1,016	154

International Monetary Fund provides assistances for meeting balance of payments problems, for structural adjustments requirements, poverty reduction, debt-relief for heavily indebted poor countries, growth facilitation and so on.

The amount outstanding under the different credit facilities extended by the IMF aggregated to a peak of SDR 73 billion at the end of April 2003, but later depleted down to SDR 69 billion at the end of April 2004, then drastically down to SDR 23 billion at the end of April 2006.

3.2 Private Multinational Capital and causes

Private capital is exploding into a big bang of late at national and global levels.

3.2.1 Private Multinational Capital

Multinational Private Capital is capital contributed by foreign citizens, foreign companies, multinational corporations and the like. The present era is the era of multinational private capital. Multinational private capital flows into

multinational markets in search of better investment opportunities. Portfolio diversification and opportunity seizing are the causes.

Private capital is now trusted as a means of encouraging investments stock in third world countries. Third world countries, in the past, depended on multilateral capital. But they failed to make effective use of the capital, which resulted in mounting external debt. And debt servicing became a problem. And more conditionalities added for subsequent borrowings made the countries realize the folly of the policy of sticking to multilateral capital. They saw the great opportunity in the private capital market. The success of the Asian economies and the South American economies, kindled the interest of governments of other third world nations to taste the nectar of private capital. In private capital, debt servicing need is not there for the government. It is an issue between the financier and borrower. In private equity capital, even this need is not there.

Multinational private capital comes with technology, marketing, management and other skills. Capital flows into sectors which have potentials of growth. Thus capital market efficiency is in balance.

3.2.2 Causes for Private Multinational Capital

The responsiveness of private capital to opportunities in emerging markets started to improve in the 1990s because of both internal and external factors.

Internal factors: Internal factors improved private risk-return characteristics for foreign investors through three main channels. First, **creditworthiness** improved as a result of external debt restructuring in a wide range of countries. Second, **productivity** gains were obtained from structural reforms, privatization, liberalization, globalization and the establishment of confidence in macroeconomic management in several developing countries that had undertaken successful stabilization programs. Third, countries adopting fixed exchange rate regimes became increasingly attractive to investors owing to the **transfer of the risk of exchange rate volatility** - at least in the short run – from investors to the government.

Cyclical and structural forces: In addition, because of both cyclical and structural forces, external influences played a significant role in the capital inflow surge of 1990s. Cyclical forces were the dominant explanation in the

early 1990s, when the decline in world real interest rates "pushed" investors to emerging markets. The persistence of private capital inflows after the increase in world interest rates in 1994 and the Mexican crisis of 1994-95 suggests, however, that structural external forces were also at work. Mergers and acquisitions are the major drivers of cross-border capital flows during 2004-2006.

Developments in the financial structures of capital-exporting countries: Two developments in the financial structures of capital-exporting countries increased the responsiveness of private capital to cross-border investment opportunities: First, falling communication costs, strong competition, and rising costs in domestic markets led firms in industrial countries to produce abroad to increase their efficiency and profits. Second, institutional investors become more willing and able to invest in emerging market countries because of their higher long-term expected rates of return, wider opportunities for risk diversification owing to their broader and deeper securities markets, and greater feasibility of investing as their capital accounts were liberalized.

Competitiveness of global markets: Integrated global market has the single largest benefit of becoming more competitive, more efficient and more pregnant with opportunities that have silenced even the hard core critics of market mechanism. If funds can be generated at an overseas destination cheaply or invested at higher rates of return, even communist governments want to grab the same and when they do it they have no platform to speak against multinational financing, investment and capital. Efficiency silences critics more emphatically.

3.3 Multinational Direct Finance

Multinational Direct Finance is finance committed in entrepreneurial ventures. It might be in the form of taking over a running firm, floating a new unit, joining in a venture run by another firm or similar to any of these. Direct capital leads to investment in physical assets as against financial assets.

Direct finance is generally equity type. It is interested in management and control responsibilities. It comes with technology, market, and management. It is long term in nature.

Direct finance shifts the risk of business to the investor, who is a foreign entity. Direct finance boosts GDP growth rate as it supplements domestic

investment efforts, financially and otherwise. Multinational Direct Finance has the ability to reduce the incremental capital output ratio, because of its innate abilities and this augurs well for recipient nations, for they **can achieve higher GDP** growth **given 'he** investment **level.**

The Gross Fixed Capital Formation in the third world countries trebled between 1986 and 2000 because of Multinational Direct Finance. Besides Income generation, employment generation is there. 60% of manufacturing employment in Singapore is due to multinational direct finance. Multinational FDI flows grew in 2006 for the third consecutive year to reach US$1.2 trillion, according to UNCTAD. This represents a 34 percent increase from 2005, although still short of the record of US$1.4 trillion set in 2000. FDI flows to developed countries in 2006 rose by 48%, well over the levels of the previous two years, and reached US$ 0.8 trillion. FDI flows to developing countries and economies in transition (comprising South-East Europe and the Commonwealth of Independent States) rose by 10 % and 56 %, respectively, in 2006, reaching record levels for both groups of economies. Multinational Direct Finance brings into the recipient economy 4 Es, namely, efficiency, equity, experience and expertise. In return, there is just one E, is the expatriation of profits.

3.4 Multinational Indirect Finance

Indirect finance- chases financial securities or paper assets in the secondary market, as opposed to direct finance which goes after requiring physical assets and management control. Investments in floating shares, debentures, bonds and their variants are called indirect finance or portfolio finance.

Portfolio finance is meant to effect portfolio changes. The objective is risk diversification and optimization of return-risk equation. It need not be long-term. It can land in and take off at short notice. It is a fair weather friend, according to some.

Indirect finance can render benefits to a country, just the way direct finance can. Secondary market activation, market efficiency improvement, right valuation, etc., help immensely the nation in attracting direct capital as well. Individually primary capital market can be stirred up.

Indirect finance was conspicuous by its absence until 1982. The indirect finance flow for developing countries stood at a figure of$ 37 bn during 1991. It

took wings to touch a figure of $ 114 bn during 1993. A slide took place later and in 1998 the flow was just $ 37 bn.

3.5 Multinational Macro Finance

Multinational Macro Finance refers to finance flows at the macro or aggregate level. It covers multilateral, bilateral, unilateral, private, direct and indirect capital flows taken in aggregate terms.

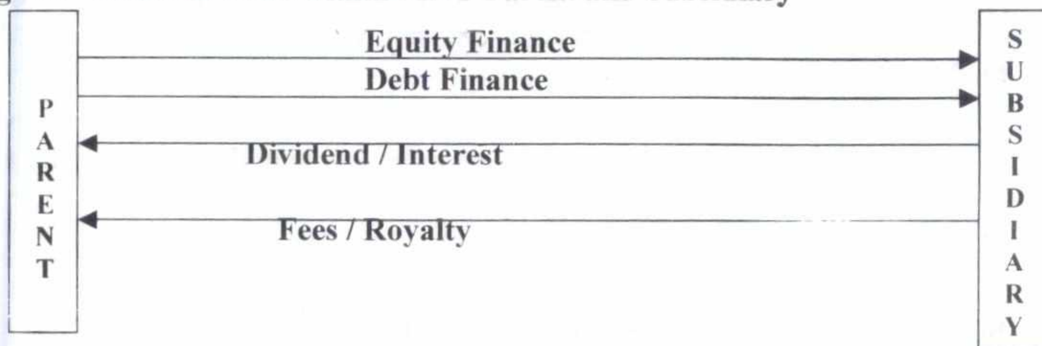
Macro finance flows are influenced by macro level factors like regional/nations opportunities, political stability, exchange rate regime, legal environment, economic cycles, capital market conditions, labor market trends, product market position and so on.

3.6 Multinational Micro Finance

Multinational Micro Finance is concerned with finance flows into a specific unit or firm or company or a specific project. While macro environment conditions the micro level capital flows, the same are further influenced by unit specific factors like its management, market potentials, strengths, weaknesses, opportunities, threats, product portfolio, performance expectations etc.

Micro level multinational finance flows can be seen in terms of flows between a parent and a subsidiary of the parent organization as well. The following figure 1.1 gives an account of the financial flows.

Fig 1.1. Financial flows within MNC Parent and Subsidiary



4. FINANCIAL MANAGEMENT

Financial management is management of finance. That is, managing the procurement, and deployment of finance and also dealing with useful application of net earnings generated. The galaxy of activities involved in the process is

what financial management consists of. When these activities spread over several countries and continents, multinational financial management sprouts. With this prelude, let us study financial management in some detail, before furthering our deliberations on multinational financial management.

4.1 Concept of Financial Management

Finance is a critical input to business creation, sustenance, growth and development. Like blood to our life, finance is vital to businesses. So long as the quantity and quality of blood and its flow through the veins and arteries are fine the human life is sustained. Else it stumbles and collapses. The same is the case for business units as well with respect to the quantity and quality of their finance and its flow in and out on an even keel. Business units need finance in the form of fixed capital required for creating and/or acquiring fixed assets and working capital for meeting day-to-day routine, regular and operational expenses.

4.1.1. Definitions of Financial Management

What is meant by financial management? It is very simple, indeed. Financial management is management principles and practices applied to finance. **Howard and Upton** view that financial management is the application of general management functions to the area of financial decision making. General management functions include planning, execution and control. Financial decision making includes decisions as to size of investment, sources of capital, extent of use of different sources of capital and distribution of excess of income. Financial management, is therefore, planning, execution and control of investment of money resources, raising of such resources and purposeful spending of excess income.

Howard and Upton define financial management as "that administrative area or set of administrative functions in an organization which have to do with the management of the flow of cash so that the organization will have the means to carry out its objectives as satisfactorily as possible and at the same time meets its obligations as they become due.

Bonneville and Dewey interpret that financing consists in the raising, providing and managing all the money, capital or funds of any kind to be used in connection with the business. According to **James C. Van Horne and John M. Wachowicz** financial management is concerned with acquisition, financing and

management of assets with some overall goal in mind. **Osbon** defines financial management as the "process of acquiring and utilizing funds by a business".

Considering all these views, financial management may be defined as that part of management which is concerned mainly with raising funds in the most economic and suitable manner, using these funds legitimately as possible; planning future operations and future developments through financial accounting, cost accounting, budgeting, statistics and other means. Financial management provides the best guide for future resource allocations. It designs and implements certain financial plans, investment plans and value addition plans.

4.1.2. Essence of financial management

The essence of financial management lies in that, that the institution concerned (i) has adequate and appropriate capital for its diverse activities, (ii) has utilized the capital in the most efficient and dynamic way to create or acquire adequate and appropriate assets and (iii) uses the excess of income over expenses in the most appropriate way. An explanation of these is attempted below.

i. Adequacy and appropriateness of Capital

Capital is the financial resources at the disposal of a firm. Capital might be *owned capital* (i.e., contributed by the owners) or *borrowed capital* (i.e., borrowed by the owners from banks and other lenders for the purposes of the institution). Capital might be *long term* (i.e., permanently committed in the institution in creating and/or acquiring fixed assets like land, building, machinery, etc) or *short-term* (i.e., temporarily used and perhaps later returned and re-obtained and returned after use). Adequate long-term and short-term capital are needed for a business.

Capital must not only be adequate, but appropriate too. Appropriateness of source of capital (owned and borrowed, domestic and foreign, short-term and long-term) is much more important. Source must match the need or utilization. Source of capital must be economical, flexible and hassle free.

ii. Efficient and dynamic deployment of capital

When capital is deployed, that is used, assets are created or acquired. Assets in the form of fixed assets like land, building, plant, furniture, fittings,

equipment, vehicles, etc., must be adequate for the institution given its activities. Floating assets in the form of stores and consumables (raw materials like chemicals, coal, fuel, reams of stationery, etc), receivables in the of form of dues from customers, and bank balance and cash in hand must an institution maintain. Efficiency of assets means better returns and less risk from the assets.

The assets must be most useful, most rewarding, most dynamic and most forward looking. Appropriate assets give high return at relatively less risk of fluctuation in the returns. Most of these assets most appreciate in value and/or least depreciate in value.

iii. Appropriate Use of net-earnings

When both the funds and assets are adequate and appropriate, the institution will definitely make more income than expenses. The excess of income over expenses, that is net earnings, must be rightly used. It could be used to expand activities, to build deposits and reserves, to institute scholarship to deserving learners, to diversify, to moderate and so on.

4.2 Importance of Finance

Finance is very important to business or any institution. Sound financial position of an institution influences its i) range and quality of business activities, ii) profitability of its activities, iii) liquidity and solvency of the institution, iv) expansion and diversification programs and v) Goodwill of the institution. These are explained below.

i. Scale and Quality of Activities

The scale of activities carried on is influenced by the financial strength of the institution. Sound financial footing enables going for more activities, better facilities, etc. The financially strong institutions float innovative projects quite often and create quality infrastructure, recruit the best talents. There a virtuous circle of one good thing leading to the next and further leading to the best is found.

ii. Profitability

Sound finance is always reflected in comfortable level of profitability which immensely contribute to growth, vitality, diversification and so on.

iii. Liquidity and Solvency of Institutions

Liquidity refers to ability to repay short-term loans taken from banks or other sources. Solvency refers to ability to pay interest and repay long-term loans taken from banks / financial institutions / equipment suppliers on deferral credit facilities extended. Business institutions must take care of liquidity and solvency as two eyes, because lack of liquidity, i.e., ill-liquidity and lack of solvency, i.e., insolvency can ruin any institution. Better financial management placing emphasis on the right source of borrowing, right quantity of borrowing, right cost of borrowing and right utilization of the borrowed sum will save the institution from the crises of illiquidity and insolvency.

iv. Expansion and diversification

Sound financial management ensures expansion and diversification of activities of the institution. Any institution must grow with time and ahead of time. Geographical expansion with new satellite institution at far and near places, vertical expansion by backward and forward integration, intellectual expansion, etc., are signs of development. Diversification involves multi-pronged development, as against linear expansion. The world is a dynamic stage. Diversification of projects, products, services offered, strategic alliances with renowned institution within and outside the country and nexus with educational institutions to provide training for employees are needed these days. These are means by which the institution remains linked with the outer world from which it sources opportunities and encounters threats. Financial allocations of adequate size is needed for these.

v. Goodwill

The goodwill that an institution creates is the greatest asset. Goodwill is built through years of dedicated service – business and community. Community services include adoption of villages for up-liftment, espousing to social, ecological and environmental causes and so on. While attitudinal commitment is needed, readiness to commit financial resources is further needed.

4.3 Nature of Finance Management

Nature of financial management is concerned with its functions, its goals, trade-off with conflicting goals, its indispensability, its systems, its relation with

other subsystems in the firm, its environment, its relationship with other disciplines, the procedural aspects and its equation with other divisions within the organization.

Integral part of overall management: Financial Management is an **integral part of overall management**. Financial considerations are involved in all business decisions. Acquisition, maintenance, removal or replacement of assets, employee compensation, sources and costs of different capital. Production, marketing, finance and personnel decision, almost all decisions for that matter have financial implications. Therefore, financial management is pervasive throughout the organization.

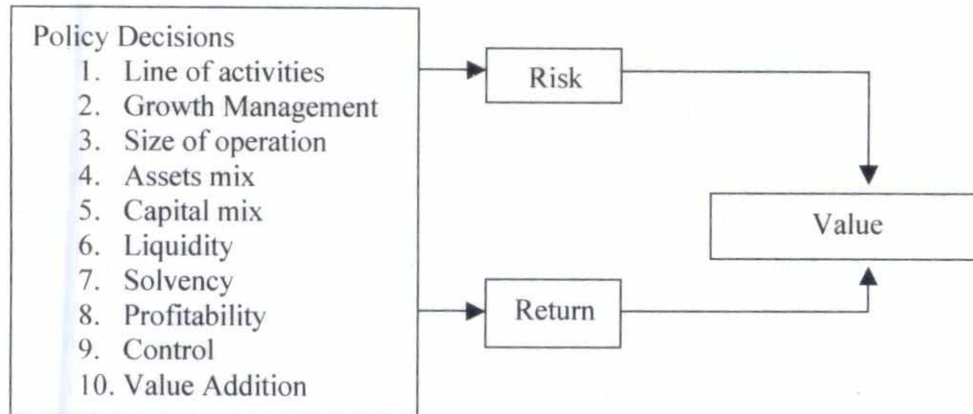
Valuation of the firm: The central focus of financial management is *valuation of the firm*. Yes, institutions have market value. Financial decisions are directed at increasing/maximization/ optimizing the value of the institution as depicted in Figure 1.1 below.

Risk-return trade-off: Financial management essentially involves *risk-return trade-off*. Decisions on investment involve choosing of types of assets which generate returns accompanied by risks. Generally, higher the risk, returns might be higher and vice versa. So, the financial manager has to decide the level of risk the firm can assume and satisfy with the accompanying return. Similarly, cheaper sources of capital have other disadvantages. So to avail the benefit of the low cost funds, the firm has to put up with certain risks. So, risk-return trade-off is there throughout. Fig. 1.2 implies this aspect of financial management also.

Survival, growth and vitality: Financial management *affects the survival*, **growth and vitality** of the institution. Finance is said to be the life blood of institutions. The amount, type, sources, conditions and cost of finance squarely influence the functioning of the institution.

Investment, raising of capital, distribution of profit: Finance functions, i.e., *investment, raising of capital, distribution of profit*. are performed in all firms - business or non-business, big or small. proprietary or corporate undertakings. Yes, financial management is a concern of every concern.

Fig. 1.2 Valuation Orientation of Financial Management

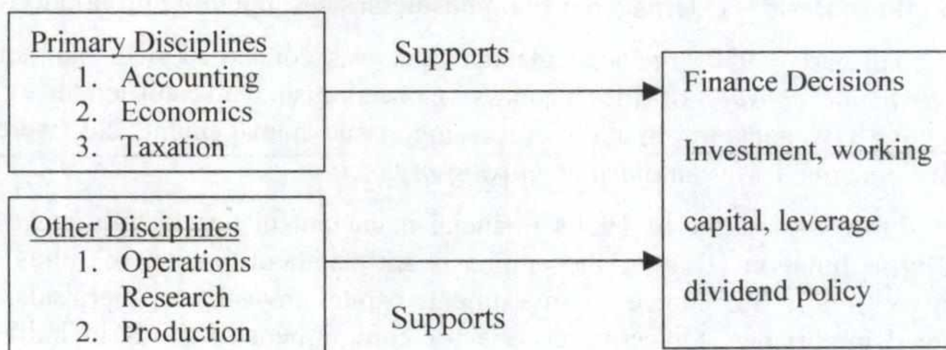


Sub-system of the business system: Financial management is a *sub-system of the business system*, which has other subsystems like production, marketing, personnel and research wings/activities. In systems arrangement financial sub-system is to be well-coordinated with others and other sub-systems well matched with the financial sub-system of the institution.

External, legal and economic environment: Financial management of an institution is influenced by the *external, legal and economic environment*. The legal constraints on using a particular type of funds or on investing in a particular type of activity, etc., affect financial decisions of the institution. Financial management is, therefore, highly influenced/constrained by external environment.

Multi disciplines: Financial management is *related to other disciplines like accounting, economics, taxation, operations research, mathematics, statistics* etc.. It draws heavily from these disciplines. The relationship between financial management and supportive disciplines is depicted in figure 1.3given below.

Fig.1.3 Relationships between Finance and other Disciplines



Procedural finance functions: There are some procedural finance functions - like record keeping, credit appraisal and collection, inventory replenishment and issue, etc. These are routine and normally delegated to bottom level management executives.

Special characteristic of the business: The nature of finance function is influenced by the special characteristic of the business. In a predominantly technology oriented institution like CSIR, it is the R & D functions which get more dominance, while in a university or college the different courses offered and research which get more priority and so on.

4.4 Evolution of Financial Management

Finance, as capital, was part of the economics discipline for a long time. So, financial management until the beginning of the 20th century was not considered as a separate entity and was very much a part of economics. micro economics / monetary economics / fiscal economics.

In the 1920s, *liquidity* management and raising of capital assumed importance.

In the 1930s, there was the *Great Depression*, i.e., all round price fall. business failures and declining business. This forced the business to be extremely concerned with *solvency, survival, reorganization* and so on.

Financial Management emphasized on solvency management and on debt-equity proportions. Besides external control on businesses became more pronounced.

Till early 1950s financial management was concerned with maintaining the *financial chastity* of the business. Conservatism, investor/lender related protective covenants/information processing, issue management, etc. were the prime concerns. It was an *outsider-looking-in function*.

From the middle of 1950s financial management turned into an *insider-looking-in* function. That is, the emphasis shifted to utilization of funds from rising of funds. So, choice of investment, capital investment appraisals, etc., assumed importance. Objective criteria for commitment of funds in individual assets were evolved.

Towards the close of the 1950s *Modigliani and Miller* expert finance professors, even argued that sources of capital were irrelevant and only the *investment decisions were relevant.* Such was the total turn in the emphasis of financial management.

In the 1960s *portfolio management* of assets gained importance. In the selection of investment opportunities portfolio approach was adopted, Certain combinations of assets give more overall return given the risk or give a certain return for a reduced risk. So, selection of such combination of investments gained eminence.

In the 1970s the Capital Asset Pricing Model (CAPM), Arbitrage Pricing Model (APM), Option Pricing Model (OPM), etc., were developed - all concerned with how to choose financial assets. In the 1980s further advances in financial management were found. Conjunction of personal taxation with corporate taxation. financial signaling, efficient market hypothesis, etc., were some newer dimensions of corporate financial decision paradigm. Further Merger and Acquisition (M&A) became an important corporate strategy with domestic funds.

The 1990s. saw the era of *financial globalization*. Globalization is the order of the day. Capital moved West to East, North to South and so on. So, multinational financial management, multinational investment management, foreign exchange risk management, etc., become more important topics. Now Merger and Acquisition (M&A) became an important corporate strategy with outsourced funds.

In late 1990s and early 2010s, *governance* got preeminence and *financial disclosure* and related norms are being great concerns of financial management. The dawn of 21st Century is heralding a new era of financial management with *cyber support*.

The developments till mid 1950s are branded as *classical financial management*. This dealt with cash management, cash flow management, raising capital, debt-equity norms, issue management, solvency management and the like. The developments since mid - 1950s and up to 1980s, are branded as *modern financial management*. The emphasis is on asset management, portfolio approach, capital asset pricing model, financial signaling, efficient market hypothesis and so on. The developments since the 1990s may be called *post-modern financial management* with great degree of multinational financial integration, inter net supported finances and so on.

4.5 Significance of Financial Management

The significance of financial management is now dealt.

i. Financial Management *covers a very large spectrum of activities* of an institution. True, whatever an institution does it has a financial implication. Hence its pervasiveness and significance. Finance knowledge is a must for all irrespective of position, place, portfolio and what not.

ii. Financial Management *influences the profitability* or return on investment of a business. Yes, the choice of capital investment decisively affect the profitability of an institution.

iii. Financial Management *affects the solvency position* of an institution. Solvency refers to ability to service debts, paying interest and repaying principal as these become due. Income and nature of debts - both concerns of financial management, govern the solvency aspect. Hence the significance of financial management.

iv. Financial Management *affects the liquidity position* of an institution. Liquidity refers to ability to repay short term loans. Efficient cash management, cash flow management and management of relations with the banker influence the level of liquidity. All these factors are aspects of financial management.

v. Financial Management *affects cost of capital*. Able financial managers find and use less cost sources, which in turn contributes to income. In using fixed cost sources of capital, the efficacy of sound financial management would be known well. Variable cost source of capital are the order of the day. Finance savvy persons go for a mix of both fixed and variable cost sources of capital.

vi. Financial Management, if well steered can *ward off difficulties* such as restrictive covenants imposed by lenders of capital, inflexibility in capital structure, dilution of management control on the affairs of the institution and so on. Failure to do so, has landed many institutions in difficulties and financial mess.

vii. Good financial management enables an institution to *command capital resources*. There is always capital available at attractive terms, if finance is handled well. Even overseas capital can be easily mobilized, if sound financial management is ensured.

viii. *Market value* of the institution can be increased through efficient and effective financial management.

ix. Effective financial management is necessary for the *survival, growth, expansion and diversification* of any institution.

x. Financial Management significantly influences the *business's credit rating*, employee commitment, suppliers' confidence, customers' patronage and the like.

xi. Financial Management is an exercise on *optimizing costs given revenues, or optimizing revenues given costs*. This is vital to ensure purposeful resource allocation.

xii. Today financial management has *multinational dimensions* with cross border opportunity to mop up resources and put up investments. Late 2006 and Early 2007 saw two Indian firms, belonging to the Mittals and the Tatas went with remarkable cross border investments acquiring businesses overseas amidst tough competitive bidding.

The significance of financial management can be well appreciated if one considers the analogy which was presented earlier too in this chapter. Finance is what blood is to living beings. Financial management is what the blood

circulation system is to living beings. The functions of heart, veins, arteries, etc., in maintaining the circulation of blood are life's worth to living beings. So is the worth of financial management to an institution.

4.6 Finance Functions

Finance functions simply refer to functions of financial management. The functions of financial management are divergent. Several classifications are used. Here are presented the functions of financial management as noted by eminent authors. Chart 1.1 gives the details.

Chart .1.1 Functions of Financial Management

Authors	1	2	3	4
Robert W Johnson	Financial Planning and control	Raising of funds	Investment funds	Meeting special problems
Grunwald Nemmars	Investment of funds	Providing liquid assets	Generating earnings	Maximizing Returns
Van Horne & Wachowicz	Investment function	Financial function	Dividend function	---
Earnest W. Walker	Financial planning	Financial co-ordination	Financial control	---
Weston & Brigham	Financial planning and control	Fixed asset and working capital management	Capital structure decisions	Individual financing episodes

Well. The above figure presents the functions of financial management, or finance functions shortly, as perceived by the different authors. Let us look at them in a more analytical way. Finance functions are classified on two dimensions - managerial and operative. The managerial financial functions include planning, organization, direction, coordination and control of the operative functions. The operative functions include investment function/policy.

financing function/policy and dividend distribution function/policy. We have a matrix of functions as given in Chart 1.2.

Chart .1.2 Matrix of Finance Functions

Operative Functions of Finance	Managerial Functions				
	Planning	Organizing	Direction	Coordination	Control
Investment Function / Policy/ decision					
Financing Function / Policy/ Decision					
Dividend Function/ Policy/ Decision					

Each one of the operative functions has got to be planned, organized, directed, coordinated and controlled ably. Investment function is concerned with the asset to be acquired. Fixed and current assets are needed. Commitment of funds in them is dealt by investment function. Financing function is concerned with the capital sources to be tapped. Equity and debt funds are available. The mix of them is dealt by financing function. We may put this way. The investment function deals with the 'asset side' of balance sheet and financing function with the 'liabilities side' of balance sheet. Finance function deals with how much of income to be distributed as reward for owners and how much be retained. Evidently, each of the operative functions involves a host of dimensions as to size, variety, proportions, timing, sourcing and so on requiring a total managerial approach to decide each on each dimension. Hence the interplay of managerial and operative functions and hence the matrix form is chosen.

Now a more detailed account of each of the operative functions is attempted.

4.6.1 Investment Function

A detailed discussion on investment function of financial management is taken up. This function essentially covers the following:

i) the total amount to be committed in assets, its global spread and so on

ii) the proportion of fixed to current assets

iii) the mix of fixed assets to be acquired

iv) the timing, sourcing and acquisition of fixed assets

v) the evaluation of capital investments as to risk and return features, sensitivity of benefits to changes in critical determinants of performance

vi) the mix of current assets

vii) the management of each item of current assets to optimize liquidity and return

viii) the effecting of a healthy portfolio of assets

ix) strategic mergers and acquisitions and other strategic investments

x) risk complexion of assets and portfolio of assets/projects and their sensitivity to changes in critical performance determinants

Actually the above aspects of investment function are concerned with much pregnant issues with which financial management is concerned. The first aspect deals with the size of the firm, the second and third deal with the level of risk the institution is willing to assume, the fourth with appraisal of investment as to their earnings potential, pay back period, etc., the fifth with actual execution of investment decisions, the sixth with the liquidity of the business, the seventh with structural and circulatory aspects of current assets and the eighth with the overall balancing of various investments held by the institution taking into account competing and divergent claims.

Investment function is, concerned capital budgeting and current asset management. Capital budgeting deals with fixed assets management. Investment appraisal, capital rationing and acquisition. maintenance. replacement and renewal of fixed assets come under fixed assets management. Inventory management, receivables management, marketable securities management, cash management and working capital administration come under current assets management. A good deal of planning, organization, coordination and control is needed in every decision area.

4.6.2 Financing Function

The financing function refers to raising necessary funds for backing up the investment function. Financing function is dealing the capital structure of the business and covers the following:

- determination of total capital to be raised and break-up of the same between global and domestic sources
- determination of the debt-equity rates or the proportion of debt to equity capital and the mix of long term and short-term capital and global and domestic equity/debt
- determination of the level of fixed-change funds like bonds, debentures, loans, etc.
- determination of the sources of borrowing - development banks, public or private, domestic or global
- determination of the securities/charges to be given
- determination of the cost of capital
- determination of the extent of lease financing
- determination of the degree of sensitivity of earnings per share to earnings before interest and taxation
- determination of the method of raising capital-public issue or private placement or rights issue, under-writing and brokerage, book-building, choice of merchant bankers, listing with stock exchanges and the like
- the legal restrictions, if any, on the scale, form, timing and other aspects of raising capital

Like investment function, financing function also affects the liquidity (less short term debt means more liquidity), solvency (more equity means more solvency), earnings potential (low cost capital means more earnings), flexibility of capital structure (more equity, more flexibility), owner's control on affairs (more debt and less equity mean more concentration of control on the affairs of the institution) and so on. That is, financing function is equally influences the fortunes of the business greatly. But authors like Modigliani and Miller would argue that financing is not all that relevant requiring our deep concern. Any capital mix or structure is equally good or bad as any other.

4.6.3 Dividend Function

The third and last, but not the least important function of financial management is dividend distribution function. The fruits of the carefully executed earlier two functions are the earnings. How the earnings are to be utilized, is the concern of the distribution function. How much of the earnings to be distributed as dividend to the owners. Retaining the earnings and ploughing back the same in the institution itself may become necessary because; the institution can invest more meaningfully than the owners; the institution can get established and can modernize, diversify and expand using the retained earners.

A well thought out plan of action is called for. Hence the significance of this function.

There is another classification of finance functions. Treasurer functions and controller functions are the two types. Treasurer's responsibilities include asset management, capital budgeting, bank-institutional relationship, credit management, dividend disbursement, investor's relations, insurance risk management, tax analysis, etc. The controller deals with accounting, data processing, budgeting, internal control, government reporting, etc.

4.7 Goals of Financial Management

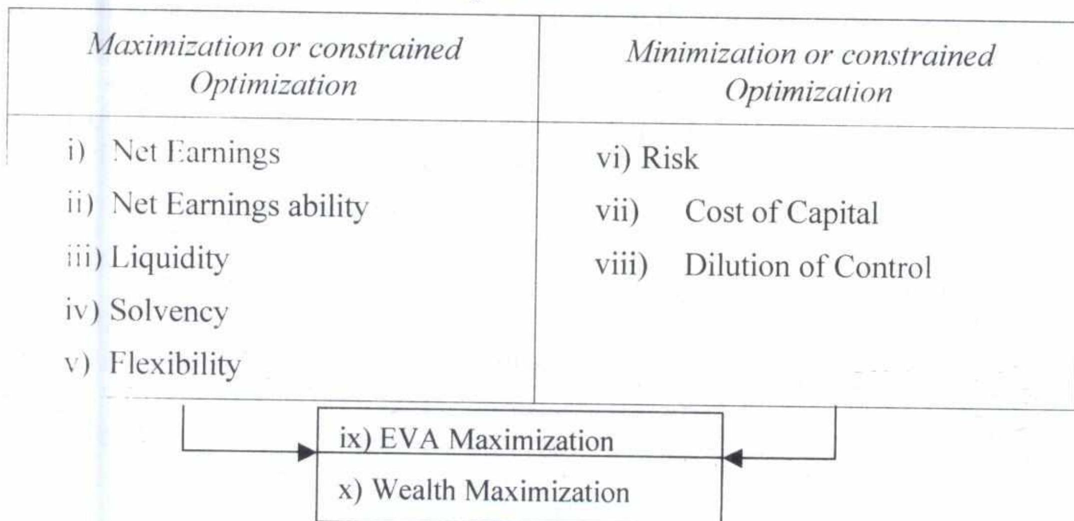
Goals provide the foundation for any managerial activity. They are the ends toward which all activities are directed. The purpose and direction of an organization are seen in its goals. Goals act as motivators. serve as the standards for measuring performance, help in coordination of multiplicity of tasks. help in identifying inter-departmental relationships and so on. Simply put. goals are what you aim at. So, goals have to be specific and quantitative. Generally. goals are multiple. Financial management may pursue different goals such as increasing earnings by 20% every year. reducing cost of capital by 1%, maintaining the debt-equity ratio at 3:2 and so on. Let us examine all these in detail.

The goals can be classified in many ways. Official goals. operative goals and operational goals are one classification. Official goals are the general aims of the organization. Maximization of return on investment and market value may

be termed as official goals. Operative goals indicate what the organization is really attempting to do. They are focused and help in choice making. Expected return on investment, cost of capital, debt-equity norms, etc., along with time horizon are specified on their acceptable ranges/limits are stated keeping in view the official goals. The operational goals are more directed, quantitative and verifiable. The scale, mix and timing of specific form of finance are detailed. The official, operative and operational goals are structured with a pyramidal shape, the official goals at the top (concerned with the top executives), operative goals at the middle (concerned with middle management) and operational goals at the base.

The goals can be classified in a functional way. Return related goals, solvency related goals, liquidity related goals, valuation related goals, risk related goals, cost related goals and so on. Return related goals refer to the aims on minimum, average and maximum returns. What should be the minimum return from a project in order to accept the same, what should be average return the firm should settle for and what is the optimum return possible (for risk increases with return). Similarly, goals as to solvency, liquidity, market value etc., can be thought of. You have to state to what extent the stated goal factor is important and be actively pursued/and the extent of the goal factor required, the minimum, average and the maximum levels be specified. The different goals of financial management are given below in Fig. 1.4.

Fig. 1.4 Goals of Financial Management



4.7.1 Net Earnings (NE) Optimization

Earnings optimization is a stated goal of financial management. Net earnings are the excess of revenue over expenses. Net earnings optimization is therefore maximizing revenue given the expenses, or minimizing expenses given the revenue or a simultaneous maximization of revenue and minimization of expenses. Revenue maximization is possible through pricing and scale strategies. By increasing the offer price one may achieve revenue maximization, assuming demand does not fall by a commensurate scale. By increasing quantity of demand by exploiting the price elasticity of the demand factor, revenue can be maximized. Expenses minimization depends on variability of costs with volume, cost consciousness and market conditions for inputs. So, a mix of factors is called for net-earnings optimization.

This objective is a favoured one for the following reasons:

First, Net earnings are a *measure of success* in operation. Higher the NE, greater is the degree of success. Second, Net earnings are a *measure of performance*. Performance efficiency is indicated by the quantum of NE. Third, Net earnings are *essential for the growth and survival* of any undertaking. Only greater NE making institutions can think of tomorrow and beyond. It can only think of renewal and replacement of its equipment and can go for modernization and diversification. NE position is an engine doing away the odds threatening the survival of the institution. Fourth, making a neat NE is the *basic purpose* of any institution. It is accepted by society. A losing institution is a social burden. The sick undertakings cause a heavy burden to all concerned, we know. So, NE criterion brings to the light operational inefficiency. You cannot conceal your inefficiency, if NE is made the criterion of efficiency. 5th NE making is not a sin. NE motive is a socially desirable goal, as long as your means are good.

4.7.2 Net Earnings Ability

NE as an absolute figure conveys less and conceals more. NE must be related to either sales revenue, capacity utilization, people employed or capital invested or some relevant base. NE when expressed in relation to the above size or scale factors it acquires greater meaning. When so expressed, the relative NE is known as NE ability. NE per dollar sales revenue, NE per dollar in investment, etc., are more specific. Hence, the superiority of this approach to the net earnings approach.

4.7.3 Liquidity Optimization

Liquidity refers to the ability of a business to honour its short-term liabilities as and when these become due. This ability depends on the ratio of current assets to current liabilities, the maturity patterns of currents assets and the current liabilities, the composition of current assets, the quality of non-cash current assets; the relations with the short-term creditors; the relations with bankers and the like. A higher current ratio, i.e., current assets divided by current liabilities, a perfect match between the maturity of current assets and current liabilities, a well balanced composition of current assets, healthy and `moving' current assets, i.e., those that can be converted into liquid assets with much ease and no loss, understanding creditors and ready to help bankers would help maintaining a high-liquidity level for an institution. All these are not easy to obtain and these involve costs and risks.

How far is it a good goal? It is a good goal, though not a wholesome one. Every institution has to generate sufficient liquidity to meet its day-to-day obligations, lest, the institution suffers. But, high liquidity might result in idle cash resources and this should be avoided. Yes, excess liquidity and excess earnings move in the opposite directions. They are conflicting goals and have to be balanced.

4.7.4 Solvency Optimization

Solvency is long run liquidity. Liquidity is short-run solvency. The institution has to pursue the goal of solvency optimization. Solvency is the capacity of the institution to meet all its long-term liabilities. The earning capacity of the business, the interest payout on loans taken; the ratio of cash flow to debt amortization, the equity-debt ratio etc., influence the solvency of an institution. Higher the above ratio greater is the solvency and vice-versa.

Is this a significant goal? Yes, solvency is a guarantee for continued operation, which in turn is necessary for survival, growth and expansion. Borrowed capital is a significant source of finance. Its cost is less; it gives tax leverage; So, earnings increase; so market valuation increases. So, wealth optimization is enabled through borrowed capital. But to use borrowed capital, solvency management is essential. You have to decide the extent to which you can use debt capital and ensure that the cost of debt capital is minimum. Higher dependence on debt and higher cost (higher than the return on investment) of debt would spell doom to the business. If the cost is less and your earnings are

stable, a higher debt may not be difficult for servicing. Solvency optimization is increasing your ability to service increasing debt and does not mean using less debt capital. Increasing the debt service ability would require generating more and stable cash flows through the operations of the institution. Ultimately, the nature of investments and ventures on hand influence solvency.

4.7.5 Flexibility Optimization

Flexibility means freedom to act in one's own way. The finance manager must enjoy a good degree of freedom to pursue actions considered goal for the concern. This is possible when more equity capital is used, because there are no restrictive covenants and exit options are available.

4.7.6 Optimization of Risk

Optimization of risk is one of the goals. Risk refers to fluctuation, instability or variations in what we cherish to obtain. Variations in enrolment, earnings, liquidity, solvency, market value and the like are referred to risk. Business risk and financial risk are prominent among different risks. Business risk refers to variation in earnings while financial risk refers to variation in debt servicing capacity. The business risk, alternatively, refers to variations in expected returns. Greater the variations, greater the business risk. Risk optimization also does not mean taking no risk at all. It means minimizing risk given the return and given the risk maximizing return. Risk reduction is possible by going in for a mix of risk-free and risky investments. A portfolio of investments with risky and risk-free investments, could help reducing business risk. So, diversification of investments, as against concentration, helps in reducing business risk.

Financial risk arises when you depend more on fixed cost capital structure and your cash flows and earnings before interest and tax vary.. To minimize financial risk, the quantum of debt capital be limited to the serviceable level. Of course, debt payment scheduling and rescheduling may help in financial risk reduction and the creditor must be agreeing to such schedules/reschedules. Here too, a portfolio of debt capital can be thought of to reduce risk. A mix of fixed rate and floating rate capital funds is a good plan.

4.7.7 Optimization of Cost of Capital

Optimization of cost of capital is a laudable goal of financial management. Capital is a scarce resource. A price has to be paid to obtain the

same. The minimum return expected by equity investors, the interest payable to debt capital providers, the discount for prompting payment of dues, etc., are the costs of different forms of capital. The different sources of capital have different costs. In theory, equity is the costliest source. The debt capital costs less. So, to optimize cost of capital you have to use more debt and less of the other forms of capital. Using more debt to reduce cost is however is beset with some problems, viz., you take heavy financial risk, create charge on assets and so on. Some even argue, that more debt means more risk of insolvency and bankruptcy cost arises. So, debt capital has, besides the actual cost, another dimension of cost - the hidden cost. So, optimizing the cost of capital means, optimizing the total of both the actual and hidden costs.

4.7.8 Optimization of Dilution of Control

Control on the affairs of the institution is, generally, the prerogative of the owners. Owners want no dilution of their enjoinment of fruits of ownership. It is evident that optimization of dilution of control is essentially a financing - mix decision and the latter's relevance and significance had been already dealt with. But you cannot minimize dilution beyond a point, for providers of debt capital, directly or indirectly, affect business decisions.

4.7.9. Maximization of Economic Value Added (EVA)

A modern concept of finance goal is emerging now, called as maximization of economic value added (EVA). EVA = NOPAT - CCC, where, EVA is economic value added, NOPAT is net operating earnings after tax but before interest and dividend and CCC is cost of combined capital. CCC = Interest paid on debt capital **plus** fair remuneration on equity. EVA is simply put excess of profit over all expenses, including expenses towards fair remuneration paid/payable on equity fund. A higher EVA leads to higher value.

4.7.10. Wealth Maximization

Wealth maximization means maximization of net-worth of the institution, i.e., the market valuation of the institution. This objective is considered to be superior and wholesome. The pros and cons of this goal are analyzed below.

Taking the positive side of this goal, we may mention that this objective takes into account the time value of money. The basic valuation model followed discounts the future earnings, i.e., the cash flows, at the firm's cost of capital or

the expected return. The discounted cash inflow and outflow are matched and the investment or project is taken up only when the former exceeds the latter.

Let the cash inflows be expressed by CF_1, CF_2, CF_3, ... CF_n, where the subscripts 1, 2, 3, ... n are periods when cash flows realized. Let, the cash investment at time zero be `I'. The present value i.e., the discounted value of $CF_1$, $CF_2$, $CF_3$, ... $CF_n$, at the discount rate `r' is given by:

$$\frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \ldots\ldots\ldots + \frac{CF_n}{(1+r)^n}$$

The value addition is given by the present value of future cash flows minus original investment or □PVCF - I. By adopting this methodology the institution gives adequate consideration to time value of money, the short-run and long-run income and the return throughout the entire life span of the project is considered and so on.

This goal considers the risk factor in financial decision, while the earlier goals are silent as though risk factor is absent. Not only risk is there and it is increasing with the level of return generally. So, by ignoring risk, you cannot maximize profit for ever. Wealth maximization objective give credence to the whole scheme of financial evaluation by incorporating risk factor in evaluation. This incorporation is done through enhanced discounting rate if need be. The cash flows for normal-risk projects are discounted at the firm's cost of capital, whereas risky projects are discounted at a higher rate than cost of capital, so that the discounted cash inflows are deflated, and the chance of taking up the project is reduced. Cash flows - inflows and outflows, are matched. So, one is related to the other: i.e., there is the relativity criterion too. So, wealth maximization goal comes clear off all the limitations all the goals mentioned above. Hence, wealth maximization goal is considered a superior goal. This is accepted by all participants in the business system.

The profit, profitability, liquidity, solvency and flexibility optimization goals and risk, cost and dilution of control optimization goals lead to reaping of wealth maximization goal. Wealth maximization is, therefore, a super-ordinate goal.

5. MULTINATIONAL FINANCIAL MANAGEMENT VS DOMESTIC FINANCIAL MANAGEMENT

Multinational Financial Management differs from Domestic Financial Management. There are certain major dimensions that distinguish Multinational Finance from Domestic Finance. These are:

i. Foreign exchange and risks associated therewith is involved in multinational finance only.
ii. Global political risks impacting global exposures are involved only in multinational finance.
iii. Wider Market imperfections exist in multinational finance, as many heterogeneous markets are involved. This leads to more arbitrage opportunities.
iv. Expanded opportunity to reduce risk and seek growth exists in multinational finance. The extended opportunity leads to extended competition and to that extent global returns are more than domestic returns.
v. In domestic financial management most transactions are at arms length and that issues of transfer pricing, cross border taxation, etc do not arise, while in multinational financial management these are some vexing issues.
vi. The complexities are more in multinational finance than in domestic finance.

6. RISK-RETURN TRADE OFF

Financial management involves investment activities involving commitment of funds expecting returns which is associated by uncertainties.

6.1. Concept and Measures of Return

Return refers to reward for the entrepreneurs from the investment in projects and businesses. Return can be measured in terms of profitability i.e., **average or accounting rate of return or internal rate of return.**

Average Rate of Return (ARR) $= \frac{Average\ Annual\ Operating\ Profit}{Average\ Investment} x100$

The above can be computed on actual or estimated basis. The drawback of this method is that it does not take into account time value of money.

Internal Rate of Return (IRR) takes time value of money into account. This is based on cash flow.

Cash Flow = Profit after tax + Depreciation

Suppose, C_0 = Capital invested at time zero in a project and C_1, C_2, C_3 …. C_n are cash flows from the project at end of time period 1, 2, 3, … and 'n' respectively. Then, internal rate of return is that discount rate at which the sum of present value of the cash flows, namely, the C_1, C_2, C_3, ….. and C_n, is exactly equal to C_0. IRR is equal to 'k' in the equation:

$$C_0 = C_1/(1+k)^1 + C_2/(1+k)^2 + C_3/(1+k)^3 + \ldots C_n/(1+k)^n$$

IRR can also be calculated on actual or estimated cash flows.

For decision-making estimated IRR is depended on. For control, both estimated and actual IRR are used.

6.2. Concept and Measures of Risk

Risk is the fluctuation in return. This is caused by several factors. The different risks associated with an investment are:

- Credit risk
- Construction risk
- Development risk
- Market risk
- Operating risk
- Political risk
- Economic risk
- Legal risk
- Environmental risk
- Financial risk

All the above risks have two components, namely, systematic risk and unsystematic risk. The *systematic risk* arises due to nation-wide or world-wide macro factors, while *unsystematic risk* arises due to factors peculiar to the

project on hand. The former cannot be avoided. The latter can be avoided through selection and combination.

Risk is measured in terms of standard deviation of return. Given the estimated annual returns for a period of years, risk can be calculated through standard deviation of return.

Suppose estimated returns on a project for next 5 years are as follows:

12%, 18%, 5%, 22% and 13%.

The standard deviation of return is the square root of mean of sum of squares of deviation of returns from mean return.

Standard Deviation = $\sqrt{\Sigma x_i^2 / n-1}$

where, $x_i = X_i - \overline{X}$, X_n *are the returns and* $\overline{X}$ = *mean return, n = no. of observations*

In our example,

$\overline{X}$ = (12 + 18 + 5 + 22 + 13)/5 = 14%

Standard deviation = Square root of [{$(12-14)^2 + (18-14)^2 + (5-14)^2 + (22-14)^2 + (13-14)^2$ }/ (5 – 1)]

= Square root of [{4 + 16 + 81 + 64 + 1} / 4]

= Square root of [166 / 4] = 6.44%

We have assumed certainty above. Instead, given a probability distribution of returns, risk can be calculated again, through standard deviation.

Let the probability distribution of returns on a project be:

Return (Ri)	:	12%	18%	5%	22%	13%
Probability (Pi)	:	30%	10%	20%	10%	30%

The expected return = E(R) = Σ Ri Pi

= 12%(.3) + 18%(.1)+ 5%(.2) +22%(.1)+ 13%(.3)

= 0.3.6% + 1.8% + 1% + 2.2% + 3.9% = 12.5%

Risk = Standard Deviation = Square root of: $\Sigma Pi (Ri - R)^2$

= $[(.3)(12-12.5)^2 + (.1)(18-12.5)^2 + (.2)(5-12.5)^2 + (.1)(22-12.5)^2 + (.3)(13-12.5)^2]^{0.5}$

= 4.84%

Risk an also be calculated using beta coefficient. Beta is a measure of variation in return of a project against that of a standard or bench-mark investment. Suppose the returns on your project and on a bench-mark investment, say return on Bombay Sensex are as under:

Project Return	y_i	12%	18%	5%	22%	13%
Sensex Return	x_i	14%	24%	3%	28%	11%

Then beta of the project is= Covariance / Variance of Market

$$= \frac{[\Sigma (y_i - y)(x_i - x)]}{\Sigma (x_i - x)^2}$$

where x and y are means of x_i and y_i respectively.

x_i %	y_i %	$x_i - x$ (x = 16%)	$y_i - y$ (y = 14%)	$(x_i - x)(y_i - y)$	$(x_i - x)^2$
14	12	–2	–2	4	4
24	18	8	4	32	64
3	5	–3	–9	117	169
28	22	12	8	96	144
11	13	–5	–1	5	25
80	70	0	0	254	406

$$\text{Beta} = \frac{254}{406} = 0.626$$

A beta in between –1 to 1 indicates lesser variation in return of the project, as against the variation in return of the bench-mark. A beta exceeding 1 or lower than –1 indicates higher variation in project return than that of the bench-mark. The '+' sign indicates variation in the same direction and '–' sign indicates variation in opposite direction.

6.3. Trade-Off

Risk and return are linked in a probabilistic way. Higher risk may give you more return and vice-versa. There is no certainty relationship. If that were so, the concept of risk gets vanished.

You put your money with nationalized banks in different schemes. Your return at the maximum would be 8-9% or so, but you are sure this return would be given to you with no hitch or hindrance. So there is no fluctuation in your earnings from your deposits with these banks. And also deposits are insured or guaranteed by Government. *Thus there is not risk; but the return is minimum.*

You put your money in debentures of 'AAA' rated company. A 11% interest may be promised. You don't incur any risk, but the Government guarantee is not there as in the case of bank deposits. Hence a 2 to 3% extra return. You take some risk and the return is more. You put your money in a 'BBB' plus company's debentures and you are promised 13% return. Yes, you take more risk than in the case of your investment in an 'AAA' company and hence the added return. So, higher the risk, higher may be the return. In the two cases referred to above you take the risk. But returns are only promised. If promises are not fulfilled, higher returns have not resulted. Hence, the probabilistic but direct relationship between risk and return.

As risk and return move in the same direction, a trade-off has to be effected. What is the level of risk you want to take? Then the return is specified. What is the return you want to earn? Then the risk is given. If you decide one, the other is given and you can't have any bargain over that. You decide one and take the other as given. If you reduce the level of risk, this is accompanied by a reduction in return too and vice-versa. So, every unit of return has a price, i.e. the risk. You pay the price, i.e. assume the extra risk and get the extra return and vice-versa. This exchange arithmetic is referred to risk-return trade-off.

6.4. Capital Market Line [CML] and Security Market Line [SML]

Capital asset pricing theorem relates expected return with expected risk in the form of capital market line and security market line. These are cited now.

a. **Capital Market Line** deals with risk – return relationship for efficient portfolios. The expected return is given by the equation:

$$E(R_i) = R_f + \square_i \, [E(R_m) - R_f] / \square_m$$

Where,

$E(R_i)$	Expected portfolio return
R_f	Risk free rate
$[E(R_m) - R_f]$	Market risk premium
$[E(R_m) - R_f] / \square_m$	Market price of risk = Slope of the CAPM

b. Security Market Line deals with risk – return relationship for in-efficient portfolios and individual securities.

The expected return is given by the equation:

$$E(R_i) = R_f + \square[E(R_m) - R_f]$$

$$\text{where } \square = [COV(R_i, R_m)] / \square_m^2$$

$$\text{Slope SML} = E(R_m) - R_f = \text{Market risk premium}$$

The risk premium on individual securities is a function of the individual security's contribution to the risk of the market portfolio.

Individual security's risk premium is a function of the covariance of returns with the assets that make up the market portfolio.

6.5. Risk-Return Pattern of Different Investments

Business investments are of different types. Expansion project, modernization project, related diversification project, unrelated diversification project, new project and rehabilitation of sick unit project are certain types of investments in the ascending order of risk. In an expansion project lower risk is involved and hence lower return would suffice whereas, a project of unrelated diversification involves higher risk and hence higher return is expected. Suppose for the expansion project, a 12% return is expected and for others an additional 2% return is expected and for others an additional 2% return is expected at every stage, the risk-return pattern would be as charted below in chart 1.3.

Chart 1.3 : Risk-return pattern (A hypothetical case)

Type of Project	Amount of Risk	Amount of Return
Expansion	Very low	12%
Modernization	Low	14%
Related diversification	Low medium	16%
Unrelated diversification	High medium	18%
New project	High	20%
Rehabilitation of sick unit	Very high	22%

The above is only a hypothetical case.

7. ASPECTS OF MULTINATIONAL FINANCIAL ENVIRONMENT

Everything in the world is surrounded by environment. Environment influences everything. And what is environment? Everything that surrounds is a component of environment. Institutions, Instruments, Markets, Technology and Episodes constitute the environment.

7.1. Institutions

i) **Multilateral Institutions** like World Bank, International Monetary fund, International Development Association, World Trade Organization & trade blocs and International Finance Corporation,

ii) **Central banks** of major nations of the world, particularly, the USA. UK. European Community, etc,

iii) **Investment banking institutions** of repute like Merrill Lynch, Moodys, Morgan Stanley, etc. have been playing a great role in global finance. Role of some of these is dealt below.

7.1.1. World Bank: The need to strengthen the world economic system was felt much the world over during the fag end and aftermath of the World War II . Eminent economists like J.M. Keynes and Henry D. White Civil Servants and intelligentsia were seriously interested in evolving a purposeful world economic system in the post-world war period. President Roosevelt of America attached importance to the above cause. The conviction of the above personnel results in the holding of the Bretton Woods Conference in 1944 even though the war was racing over the World. The conference was attended by 44 nations of the world including India. The conference sought to bring a global financial system and economy co-operation. The British Plan authorized by J.M. Keynes and the American Plan by Henry D. White were tabled for discussion and adaptation. The basic features of the Keynes Plan and White Plan were fused together into a common plan at the conference. The conference proposed to establish:

i) The International Monetary Fund (IMF) to achieve exchange rate stabilization and to help member countries in managing balance of payment deficit.

ii) The World Bank (WB) to assist in the post-war reconstruction and development of member-countries; and

iii) The International Trade Organization (ITO) to serve as a focal point for co-operation in Global trade matters.

Later in 1945, the IMF and WB were established. (The proposal to form the ITO did not materialize). The IMF and WB are thus the Bretton Woods twins. WB is the second of the twins, came into being on 25 December 1945. Its headquarters is Washington D.C. It is a bank for financing and assisting reconstruction of economies of the member countries shattered by the ravages of the war and the development of member- countries, especially the undeveloped and developing countries.

WB at its inception had 44 countries. Any country which subscribes to the Charter Bank is admitted as a member. A member can voluntarily pull out from the Bank. The Bank has power to suspend a member and such a member is liable to make good its proportionate shares of loss if any suffered by the Bank, during the tenure of such outgoing member. The Bank was 184 members strong as on 30.6.2006. All members are not borrowers, however. In **Table 3** the number of members and borrowing members over a period of time are given.

Table 3 : Strength of Members and Borrowing Members of IBRD

Year	1945	1980	1985	1995	2006
Members	44	135,139	178	181	184
Borrowers	NA	48	41	90	130

a. Objectives of World Bank

The objectives of IBRD are embodied in Article 1 of the Articles of Agreement. They are described below.

1) **Assist in the reconstruction and development:** To assist in the reconstruction and development of territories of members by facilitating the investment of capital for productive purposes, including the restoration of economics destroyed or disrupted by War, the reconversion of productive facilities for peace-time needs and encouragement of the development of productive facilities and resources in less developed countries.

2) **Promote private foreign investment:** To promote private foreign investment by means of guarantees or participation in loans and other investments made by private investors and when private capital is not available on reasonable terms to supplement private investment by providing on suitable conditions, finance for productive purposes out of its own capital funds raised by it and its other resources.

3) **Promote the long range balanced growth of international trade:** To promote the long range balanced growth of international trade and the maintenance of equilibrium in balance of payments by encouraging international investment for the development of the productive resources of the members, thereby, assisting in raising productivity, the standard of living and the conditions of labor in their territories.

4) **Arrange the loans:** To arrange the loans made or guaranteed by it in relation to international loans through other channels, so that the more useful and urgent projects, large and small alike, dealt with first.

5) **Operate with due regard:** To conduct its operations with due regard to the effect of international investment on business conditions in the territories of members and in the immediate post-war years.

6) **Bring about a smooth transition:** To assist in bringing about a smoot transition from a war-time to peace time economy.

In this regard the Bank is interested In the initial years of its inception the Bank gave priority to bring about a smooth transition from a war-time to peace-time economy. Along with the restoration of war-hit economies, the Bank is interested in development of production facilities and resources of less developed countries. Rightly the Bank emphasized to need to supplement its assistances through private foreign investment for purposes of construction and development. The Bank is not however interested in short term development purposes, rather it is interested in long-term balanced growth often member countries. Balanced growth of internal and external sectors in order to achieve equilibrium in the balance of payment position of member countries is stresses. Promotion of conditions of labor and improvement in people's standards of living an sought to be achieved through raising productivity. Useful and urgent project irrespective of their size are given priority by the Bank. Now that the reconstruction of war-hit economies is all over, the Bank concentrates on development of member countries, especially the less developed lot.

The fundamental aims underlying the Bank's objectives are:

i. The Bank is not intended, "to provide the external financing required for all meritorious projects of reconstruction and development, but to provide a catalysis by which production may be generally stimulated and private investment encouraged"

ii. The Bank would encourage necessary action by the member governments assure the Bank's loans will actually prove productive . The promotion of sought financial programmes, the removal of unnecessary barriers and the region integration of production plans, where appropriate, are some of the fields in which the Bank may be able to exert a helpful influence,

iii. The Bank would play an active rather than a passive role to initiate and develop plans to the end that Bank's resources are used not only prudently from 4 standpoint of its investors but wisely from the standpoint of the world.

iv. The Bank is not a commercial type. Its concern is primarily to ensure that its assistances-financial and non-financial, make maximum contribution

to the all-round development of member countries' economy and people through raising production, productivity and standard of living.

b. Functions of WB

Lending, Research, Advise, Intermediation, Coordination, Protection, Guarantee and Relief functions are carried out by the WB. These are dealt below.

i. Sector-adjustment Lending

Sector-adjustment lending was designed to support, within an acceptable macro-economic frame-work, sectional programmes of policy and institutional change, including restructuring of capacity and to increase resource mobilization and the efficiency in the ways in which resources are allocated. The objective of sector- adjustment lending is to promote the introduction and effective implementation of sector policies necessary for sustained rapid growth. Depending on the objectives of the operation and country circumstances, this type of lending covers a continuum that ranges from major changes in macro-economic policies to the establishment of an appropriate framework for sector investments.

ii. Food Security in the Developing World

Another function to which the Bank addresses itself is ensuring food security in the developing countries. Food security refers to access by all people at all times to enough food for an active, healthy life.

Towards the end of securing food-securely, the Bank's task are:

(a) Helping the countries formulate cost-effective food security policies,

(b) Ensuring that economic adjustment programmes that promote long-run growth are complemented by policies and strategies to address detriment short-run effects of these programmes on food security of the poor.

(c) Continuing to give high priority to Bank's lending Programmes that rail income levels of the poor,

(d) Financing, where appropriate, investments that increase the supply and reduce price of basic staple food,

(e) Increasing the use of consultative groups and consortia as force to improve food aid coordination and

(f) Continuing its vigorous support for agricultural research.

iii. Financial Intermediation

A well developed and efficient financial system can greatly contribute to country's economic growth. Capital formation and efficient allocation of resources can be ensured. And this results in increased savings ratio and reduced capital output ratio. Towards this end, the World Bank is assisting development financial institutions in member countries.

In this regard the Bank addresses itself to support financial sector in developing strategies, policies and institutions that would:

i. increase domestic resource mobilization by providing a variety of competing depository and non-depository instruments.

ii. encourage the development of more resilent and robust financial structures, both at the level of the enterprise and of the financial system through measures that would increase the availability of long term capital and improve balance between debt and equity.

iii. improve resource allocation by reducing financial System through increasing competition and enhancement of market discipline

iv. improve the auditing framework and the institutional infrastructure for financial transitory more transparent and increase trust in the system and

v. strengthen the legal, supervising and regulatory environment of the financial system to foster financial prudence and discipline and competitive arms-length relation among financial institutions, borrowers and savers.

The Bank's main concern is developing a viable macro financial system in member countries through equity financing, institutional reform. corporate restructure and decentralization of decision making and economic power. Selective support of individual Development Financial Institutions (DFIs) would also be continued with key subject of improving their financial health so that they might become sustainable Institutions capable of mobilizing resources in both foreign and domestic markets and allocating them efficiently.

iv. Economic Development Institute

Economic Development Institute was established in 1955 to supplement the bank's lending, analytical work and policy dialogue. As a "staff college" it has, since its first course in 1956, provided mid-career training for officials of the developing world.

While EDI cannot provide financial support, it has sometimes been able to help arrange financial support from other sources, multilateral as well as bilateral. Lastly EDI is also helping to organize "twinning arrangements" and long-term advanced study programmes for the teaching staffs of some national training institutes.

v. Economic Research and Studies

The Bank's work in support of projects and programmes nourishes, and, it is nourished by a sizable programmes of economic and social research. The Bank research programmes consist of (a) special comparative studies which are under the aegis of the Research Policy Council (RPC); (b) Research Projects Approval Committee (REPAC); and (C) studies undertaken at the initiative of Bank department using their own resources. Research work of the Bank does support its lending activities. The two other major types of analytical work are policy analysis and country economic and sector work. The Bank's research programmes continue to be guided by four basic objectives; to support all aspects of the Bank's operations, to broad understanding of the development process, to improve Bank's capacity to providing advice to member countries, and to assist in developing indigenous research capacity in member countries.

The research programmes have to cover five broad priority areas, the cost and benefits of government intervention, the interplay of incentives and institution in international economic environment, the relationship of short-term policies to long term development, and the role of economic planning and institutional development. The research areas have emerged as the most important ones for supporting the Bank's operations and for keeping the Bank at the forefront of the economics of developing countries.

vi. Coordination with other World Bodies

World Bank coordinates itself with UNDP, UNICEP, WHO, UNHCR, UNESCO, OECD, NGOs, UNIDO, etc.

vii. Environment Protection

Several initiatives designed to improve environmental aspects, were launched in fiscal 1986 by WB. The developments, which represent an extension of the Bank's past policies and procedures that aim at ensuring that economic development takes place without undue ecological damage, include:

a. A programme of natural-resource management designed to *explore ways* in which the Bank's country economic and sector work can be improved *to give greater weight to environmental conditions* in developing countries.

b. Establishment of a natural-*resources information system using satellite sensing* and other technology to create a global data based on environmental conditions in developing countries.

c. A stepped-up programme of *in-house training to make nontechnical* operational staff better able to assess environmental aspects of development projects. Special training for developing country officials will also be offered through the Bank's Economic Development Institute.

d. Development of a *hazard-analysis computer programme* is made available to developing countries, as well as to industrial plant designers and contractors world wide. The programme software helps developers identify and determine the consequences of potential major accidents and learn how they can be reduced or eliminated by appropriate process changes, reductions of inventories, layout or setting changes and so forth.

e. New policies and guidelines for the *preservation and management of wildlife and wastelands*. The goals are to provide greater protection for tropical forests and rare and endangered species, preserve biological diversity and promote the economically beneficial services that wildlife and wastelands offer.

viii. Multilateral Guarantee Investment Agency (MIGA)

At the World Bank-IMF Annual meetings in Seoul, Korea, the Bank's Board of Governors, on the recommendations of the Bank's Executive Directors, decided to open the draft Convention establishing the Multilateral Investment Guarantee Agency (MIGA). MIGA came into being in 1988 and has about 160 members as on 30.6.2006. Since its inception in 1988, MIGA has issued nearly 850 guarantees worth more than $16 billion for projects in 92 developing

countries. MIGA is committed to promoting socially, economically, and environmentally sustainable projects that are above all, developmentally responsible. They have widespread benefits, for example, generating jobs and taxes, and transferring skills and know-how. Local communities often receive significant secondary benefits through improved infrastructure. Projects encourage similar local investments and spur the growth of local businesses. We ensure that projects are aligned with World Bank Group country assistance strategies, and integrate the best environmental, social, and governance practices into our work.

MIGA is designed to promote the flow of international investments to developing countries. The MIGA initiative is seen as particularly timely for two major reasons: on the one hand, governments of developing countries increasingly realize the advantage to then of direct investments over commercial borrowing. On the other hand. the flow of foreign investment into developing countries has declined in recent years. Investor have been increasingly concerned about non-commercial risks surrounding investment in these countries, including, in particular, the risks regarding the convertibility and transfer of earnings abroad. The reduction of obstacles to the flow of international investments at a time when the readiness of developing country governments to accept them has risen, is therefore essential. MIGA will have as its objective the encouragement of these flows to developing countries by issuing guarantees, including co-insurance with, and reinsurance of, existing political-risk insurers, against not commercial risks. In addition, MIGA will carry out promotional and technical assistance operations, including technical-assistance and policy advice to interested-members. MIGA is thus expected to provide an important forum for policy co-operation between capital-importing and capital-exporting countries. The cumulative guarantees given by MIGA upto 30.6.2000 amounted to $ 7.1 bn.

ix. Methods of Finance

The IBRD makes loans to members in any one or more of the ways:

1.	Direct loans	Granting or participating in direct loans out of its own funds.
2.	Direct loans	Granting loans out of funds borrowed by the Bank or raised in the market of a member.

3.	Indirect loans	Guarantee in part or whole of loans made by private investors.
4.	Indirect loans	Granting loans to regional or national Development Financial Institutions which in turn lend to business or other borrowers of their area.
5.	Loans to Affiliates	Granting loans to affiliate institution like the International Finance Corporation (IFC) & IDA.
6.	Sector-adjustment	Loans designed to support structural loans changes in financial, external and other sectors.
7.	Project loans	Lending for specific purposes or projects of reconstruction or development. Normally all loans are for specific-projects.
8.	Restricted currency	Loans provided out of restricted loan currencies being the capital paid in the currencies of members.
9.	Investment Lending	Investment lending adds to investment stock in borrowing member countries.
10.	Enclave lending	Occasionally WB lends for large forex generating projects.

The World Bank provides term loans for productive projects. Agriculture and rural development, industry, transport, energy and small scale enterprises were the traditional main investment outlets for the Bank till 1960. In the latter years the Bank place great emphasis on investments which can directly affect the well being of the masses of poor people of developing countries by making them more productive and by including them as active participants the development process. This strategy is increasingly evident in the education, population. Health and Nutrition programmes of the Bank.

x. Themes and Sectors Assisted

The *thematic orientations* and *sectoral thrusts* that WB can be known from the themes and sectors most assisted by the WB.

Themes assisted: Economic Management, Environmental & Natural Resource Management , Financial & Private Sector Development, Human Development. Public Sector Governance, Rule of Law, Rural Development, Social

Development, Gender & Inclusion, Social Protection & Risk Management, Trade & Integration and Urban Development are the themes assisted. **Table 4** gives the data for recent years.

Table 4 : WORLD BANK LENDING BY THEME - FISCAL 2001–2006

(Fig. Mn $)

THEME	2001	2002	2003	2004	2005	2006
Economic Management	895.3	1,408.0	777.8	428.6	594.6	213.8
Environmental and Natural Resource Management	1,354.6	924.0	1,102.6	1,304.6	2,493.8	1,387.3
Financial and Private Sector Development	3,940.9	5,055.4	2,882.9	4,176.6	3,862.0	6,137.8
Human Development	1,134.7	1,756.1	3,374.0	3,079.5	2,951.0	2,600.1
Public Sector Governance	2,053.7	4,247.2	2,464.1	3,373.9	2,636.4	3,820.9
Rule of Law	410.0	273.2	530.9	503.4	303.8	757.6
Rural Development	1,822.3	1,600.0	1,910.9	1,507.8	2,802.2	2,215.8
Social Development, Gender, and Inclusion	1,469.7	1,385.7	1,003.1	1,557.8	1,285.8	1,094.1
Social Protection and Risk Management	1,651.0	1,086.4	2,324.5	1,577.0	2,437.6	1,891.7

Trade and Integration	1,059.9	300.9	566.3	1,212.7	1,079.9	1,610.9
Urban Development	1,458.6	1,482.4	1,576.3	1,358.1	1,860.0	1,911.2
Theme Total	17,250.6	19,519.4	18,513.2	20,079.9	22,307.0	23,641.2

Sectors Assisted: Agriculture. Energy, Environment, Human Resources (Education, health, nutrition, social service), Industry, Finance, Infrastructure, Urban Development Telecommunication, Transportation, Water and Sewage Public Sector, Tourism, etc. are different sectors financed by the World Bank. **Table 5** gives World Bank lending by sectors.

Table 5: WORLD BANK LENDING BY SECTORS- FISCAL 2001–2006

(Mn $)

SECTOR	2001	2002	2003	2004	2005	2006
Agriculture, Fishing, and Forestry	695.5	1,247.9	1,213.2	1,386.1	1,933.6	1,751.9
Education	1,094.7	1,384.6	2,348.7	1,684.5	1,951.1	1,990.6
Energy and Mining	1,530.7	1,974.6	1,088.4	966.5	1,822.7	3,030.3
Finance	2,246.3	2,710.8	1,446.3	1,808.9	1,675.1	2,319.7
Health and Other Social Services	2,521.2	2,366.1	3,442.6	2,997.1	2,216.4	2,132.3
Industry and Trade	718.3	1,394.5	796.7	797.9	1,629.4	1,542.2
Information and Communication	216.9	153.2	115.3	90.9	190.9	81.0

Law and Justice and Public Administration	3,850.2	5,351.2	3,956.5	4,978.6	5,569.3	5,857.6
Transportation	3,105.2	2,390.5	2,727.3	3,777.8	3,138.2	3,214.6
Water, Sanitation, and Flood Protection	1,271.7	546.0	1,378.3	1,591.6	2,180.2	1,721.0
Sector Total	17,250.6	19,519.4	18,513.2	20,079.9	22,307.0	23,641.2
Of which IBRD	10,487.0	11,451.8	11,230.7	11,045.4	13,611.0	14,135.0
Of which IDA	6,763.6	8,067.6	7,282.5	9,034.4	8,696.1	9,506.2

It could be seen from the table 4 that among the different projects, agriculture, economic policy, electric power, finance, population, public sector management, social production and transportation has got the maximum assistance.

7.1.2. International Development Association (IDA)

In the later half of the 1950s the need for provision of financial assistance to third-world countries on more softer terms, than that was available from the World Bank and IMF gained global significance in order to achieve international equity. The American Senator Monroney first mooted the idea of creating a special unit under the IBRD which would lend on easier terms than the IBRD, to the poor countries. The then President of the USA, Dwight Elsenhower approved the senator's view and urged the World Bank system to favourably consider the creation of IDA. The World Bank also felt that development assistance should be multi-windowed rather than concentrated in a few monolithic units. The World Bank, unanimously accepted a proposal on 1st Oct. 1959 for setting up is principle the IDA. Its resolution went like this: 'Resolved that with respect to the question of creating an International Development Association, as an affiliate of the Bank, the executive directors, having regard to the views expressed by governors, and considering the broad principles on which the association should be established and all other aspects of the matter, are requested to formulate articles of I agreement of such an association for submission to the member Governments of the Bank". And the IDA was born on

8th Nov. 1960. Though legally and financially distinct from the World Bank, the IDA, as an affiliate to the Bank, is administered by the staff of the Bank.

a. Objectives of IDA *

The IDA provides assistance for the same purposes as the IBRD. But that would bear less heavily on the balance of payments of the borrowing countries. Thus the IBRD and IDA have common objective of raising the standards of living in developing countries by channelising financial resources from developed countries to the developing countries. However, the IDA is primarily providing assistance to the poorer developing countries. The main objectives of IDA are:

i. Helping the poorer developing member countries with soft loans. Soft lo refer to loans having 30-40 years of maturity with 10 years grace period. Soft loans carry no interest or a lower rate of interest compared to the IBRD.

ii. IDA finances not only the foreign exchange component cost of project, but a portion of the cost of local currency. Repayments can be in local current and hence IDA loans bear less heavily on the balance of payments position member countries,

iii. Lending for human development is an objective of IDA whereby IDA addresses vital issues like health, education, community development, etc. in third world countries

iv. Support for economic reform, revival and private sector development,

v. Development of infrastructure, rural areas, agriculture and environment are major concerns of IDA.

b. Functions of IDA

The major functions of IDA can be classified as below:

i. Lending from regular resources available for lending by IDA: Regular resource refer to contributions by members and IBRD for general lending by IDA.

ii. Special Facility for sub-Saharan Africa: on May 21, 1985, the International Development Association (IDA) established a Special Facility for Sub-Saharan Africa (the African Facility) constituted by funds

contributed by the International Bank for Reconstruction and Development (IBRD) and other donors to provide financing for countries of the Sub-Saharan region. The African Facility became effective on July 1,1985, and is administered by IDA. The resources of the Africa Facility are kept separate from the resources of IDA. The facility was designed to provide quick-disbursing assistance to IDA-eligible countries, in sub-Saharan Africa that had undertaken, or were committed to undertake, appropriate, medium-term programs of policy reform. Eligibility under this formula is determined in a flexible manner, taking into account the specific circumstances of countries.

iii. Special Fund Administration: On October 26,1982 the International Development Association (IDA) establishing a Special Fund (the Special Fund) constituted by funds contributed by members of IDA and administered by IDA. The arrangements governing the Special Fund may be amended or terminated by IDA'S Executive Directors subject to the agreement of a qualified majority of the contributors to the Special Fund. The resources of the Special Fund are kept separate from the resources of IDA. The Special Fund became effective on December 13, 1982. Special Fund credits are denominated in special drawing rights (SDRs): the principal amounts disbursed under such credits are to be repaid in amounts equivalent to the value in terms of SDRs of currencies disbursed.

iv. Technical Assistance to member government to prepare projects that are expected to be financed by the IBRD or IDA, to strengthen public sector institutions in their ability to deliver key services to formulate macro-economic and sectoral policy and analyze policy issue, to accelerate exploration of natural gas and oil by strengthening the members technical capability etc.

c. Methods and quantum of lending

The IDA provides credit directly to member government for financing projects, directly to industrial undertakings with or without government guarantee; indirectly through development finance companies; jointly with other lending agencies like the IRD, bilateral and private bodies.

⁄.1.3. International Finance Corporation (IFC)

The Internal Finance Corporation was set up on 20th July 1956. Though it is affiliate of the World Bank, legally and financially, the IFC and IBRD are distil entities. The IFC has its own staff-operating and legal, but draws upon the EBRD administrative and other services.

The membership in IFC is open to member countries of the IBRD. The IFC started with a membership of 32 countries including India. The membership of IFC as on 30-6-2006 stood at 180. The President of the IBRD is the ex-officio Chairperson of the IFC.

a. Objectives of IFC

IFC is a multilateral development institution established to promote the growth of productive private investment and to assist enterprises that will contribute to economic development in their countries. The common objective of IFC like IBRD and IDA, is to help raise standards of living in developed countries by channelising financial resources from the developed countries to the developing world. Provision of essential infrastructure for development would not, by itself be enough to attract private investment flows from developed countries to developing countries. A specialized body at the global level is needed to bridge the borrowers and savers. The IFC does bridge the two categories of persons/countries. It is further necessary to encourage the growth of productive private investments and savings in the developing World. The IFC addresses itself towards achieving the above broad objectives.

The IFC's Articles of Agreement states the purpose of setting the IFC in the following words: "The purpose of the corporation is to further economic development by encouraging the growth of productive private enterprises in member countries, particularly in the less developed areas. thus supplementing the activities of the IBRD

i. in association with private investors assist in financing the establishment. improvement and expansion of productive private enterprises which would contribute to the development of its member countries by making investments, without guarantee of repayment by the member government concerned, in cases where sufficient private capital is not available on reasonable terms;

ii. seek to bring together investment opportunities, domestic and foreign private capital and experienced management and

iii. seek to stimulate and to help create conditions conducive to the flow of private capital, domestic and foreign, into productive investments in member countries.

The Corporation is guided in all its decisions by the above articles of agreement.

b. Functions of IFC

a. The IFC makes its investments in partnership with private investors from the capital exporting country or from the country in which the enterprise is located or both.

b. The IFC Finances only private enterprises and that too in association with private capital.

c. It encourages the growth of capital markets in developing countries.

d. The IFC acts as a clearing house in bringing together investment openings, private capital and managerial expertise.

e. Helps establishing privately owned development finance companies and other institutions which are themselves engaged in promoting and financing private enterprises.

f. The IFC also .underwrites public issue of securities by private sector units.

g. Helping the sub-Saharan business community develop, sound projects and find finances for the same

h. The IFC also provides investment counsel to member governments. As on expansion and of this counsel, in 1986 the IFC has organized the Foreign Investment Advisory Service which helps developing country – Governments in creating the framework of policies and institutions necessary to attract and regulate direct foreign investment.

i. It helps in protect identification and promotion.

c. Methods of finance adopted by IFC

i. Direct investment in equity shares in private sector enterprises.

ii. Direct loans in a wide variety to private sector under takings,

iii. Restructuring of existing loan obligations of borrowers to the Corporation,

iv. Finances new enterprises, helps modernization, diversification and expansion existing units

v. Investment in rights shares/debentures issued by companies in which the IFC is already a share-holder.

vi. Co-financing along with bilateral and multilateral aid agencies. The IFC in co-operation with the United Nation Development Program (UNDP) and the African Development Bank has launched the Africa Project Development Facility (APDF) in May 1982 to meet the particular needs of the sub-Saharan Africa. The APDI the specific function of helping the African businessmen and companies develop sound investment projects and find finances for those projects.

vii. IFC also provides financing by means of stand-by or underwriting arrangements in support of public offerings or private placement of shares etc.

viii. Foreign portfolio investment is initiated by the IFC during the end of the fiscal year 1986. In this regard it is proposing to constitute an investment trust called, Emerging Markets Growth Fund (EMGF). The features of EMGF are as follows:

The EMGF will invest in publicly-listed shares with effective investment prospects. The $150 million share capital of the ENGF is provided by a group of leading international banks, institutional investors, and financial foundation, from various capital exporting countries. The EMGF is expected to invest in emerging stock markets. They include: in Asia-India the Republic of Korea, Malaysia, the Philippines, and Thailand: in Latin America-Argentina, Brazil, Chile, and Mexico.

An important factor considered by IFC in establishing the EMGF was the existence of a pool of funds comprising the investible resources of pension funds, insurance companies, trust funds, mutual funds and investment companies based in the capital exporting countries. These institutions seek attractive rates of return from well diversified portfolios. They are becoming much more international in their investment thinking and are looking for opportunities in new growth markets.

For developing countries, the principal advantage of foreign portfolio investment is that it opens the possibility of introducing a substantial new source of equity capital inflows without substantial loss of domestic control. Greater portfolio investment would bolster the capital base of corporations and alleviate the high debt-equity ratios found in many developing countries. Moreover, active foreign interest in emerging securities markets would attract sophisticated analytical techniques into these markets and generally contribute to increasing the efficiency of capital allocation in them.

Several emerging stock markets are comparable in size to some European markets and many have been growing much faster than the latter over the past decade. The anticipated faster rates of GNP growth in the developing world, especially in the semi-industrialized developing countries, will work towards a more rapid expansion of their stock markets.

d. Terms of financing by IFC

Most IFC's investments consists of a share subscription plus a long-term loan. Others take the form of long-term loans with an equity feature. Sometimes equity capital is easily available, but loan is not, to a concern. Then IFC provides a straight loan. It may then require a bank guarantee, demand a rate of interest higher than it would otherwise ask, or seek some other means of limiting or compensating for its risk. The type of investment, the mix and terms vary from case to case. A commitment fee of 1% on the undisturbed amount is changed. Share subscriptions are paid in the country's own currency and loans are given in US dollars or other currency or a package of currencies.

The investment partner should provide management and IFC does not assume that responsibility. Rarely does it exercise voting rights. It does not generally nominate any person to the Board of the assisted company. Periodic reports on performance and annual accounts must be submitted to the IFC. IFC makes no investment if appropriate arrangement for repatriation of its investments and earnings on that investment are not made.

7.1.4. International Monetary Fund (IMF)

International Monetary Fund (IMF) is the second of the Bretton Woods twins, the first being World Bank.

One of the most significant outcomes of the 1944 conference at Bretton Woods was the establishment of the International Monetary Fund (IMF). There

were 44 signatories to the conference, representing the allied powers. The conference gave the necessary impetus and shape to the International Monetary Fund. The purpose behind its establishment was to ensure the collection and allocation of resources in order to implement the Articles of Agreement signed at the conference at Bretton Woods.

The main role of the International Monetary Fund is to monitor the functioning of the international monetary system and provide funds to member countries requiring foreign exchange to meet any temporary deficit in the balance of payment. The International Monetary Fund was entrusted with the task of ensuring international monetary cooperation. It provides the requisite machinery for consultation and collaboration on international monetary problems. The multilateral system of payment was established with the view of facilitating current transactions between members. This was considered vital for the elimination of exchange restrictions, thereby facilitating the all round growth of world trade. Yet another objective was to promote exchange stability prima-facie through avoidance of competitive exchange depreciation as also maintaining smooth exchange arrangements among the member countries.

The resources of the fund could be used to provide liquidity to member countries facing temporary deficits in their balance of payments. Thus the fund could be used to help member countries tide over maladjustments in their balance of payment position, without resorting to measures that would endanger national and international well being.

The other objective of the fund is to promote and maintain high levels of employment and real income besides developing the productive resources of member countries.

a. Objectives of IMF

The objectives of IMF are presented below:

i. To promote international monetary corporation through a permanent institution which provides the machinery for consultation and collaboration on international monetary problems.

ii. To facilitate the expansion and balanced growth of international trade, and to contribute thereby to the promotion and maintenance of high levels of employment and real income and to the development of the productive resources of all members as primary objectives of economic policy.

iii. To promote exchange stability, to maintain orderly exchange arrangements among members, and to avoid competitive exchange depreciation.

iv. To assist in the establishment of a multilateral system of payments in respect of current transactions between members and in the elimination of foreign exchange restrictions which hamper the growth of world trade.

v. To give confidence to members by making the general resources of the Fund temporarily available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity.

vi. In accordance with the above, to shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members.

The fund shall be guided in all its policies and decisions by the purposes set forth in this Article.

b. Financial assistances provided by IMF

Financial assistance provided by the IMF is made available to member countries under a number of policies, or facilities, which reflect the nature of the balance of payments problem that the borrowing country is experiencing.

i. Regular Lending Facilities

Credit tranche, stand-by credit, extended fund facility and precautionary arrangements are the regular lending facilities adopted by IMF. These are explained below:

Credit Tranche: IMF credit is subject to different conditions, depending on whether it is made available in the first credit "tranche" (or segment) of 25 percent of a member's quota or in the upper credit tranches (any segment above 25 percent of quota). For drawings in the first credit tranche, members must demonstrate reasonable efforts to overcome their balance of payments difficulties. Upper credit tranche drawings are made in installments ("phased") and are released when performance targets are met. Such drawings are normally associated with Stand By or Extended Arrangements. For the financial year ending April 30, 2006 the tranche credits disbursements amounted to SDR 2,126 mn.

Stand By Arrangements (SBAs) are deigned to deal with short-term balance of payments problems of a temporary or a cyclical nature, and must be repaid within 3 1/4 to 5 years. Drawings are normally made quarterly, with their release conditional upon borrowers' meeting quantitative performance criteria-generally in such areas as bank credit, government or public sector borrowing, trade and payments of restrictions, and international reserve levels-and not infrequently structural performance criteria. These criteria allow both the member and the IMF to assess progress under the member's program. Stand-By Arrangements typically cover 12-18 month periods (although they can extend for up to three years. As of April 30, 2006 the outstanding credits under this type of funding was SDR 11,666 mn.

Extended Fund Facility: Financial assistance provided through Extended Arrangements under the Extended Fund Facility (EFF) is intended for countries with balance of payments difficulties resulting primarily from structural problems and has a longer repayment period, 4 1/2 to 10 years, to take account of the need to implement reforms that can take longer to put in place and have full effect A member requesting an Extended Arrangement outlines its goals and policies for the period of the arrangement, which is typically three years but can be extended for a fourth year, and presents a detailed statement each year of the policies and measures to be pursued over the next 12 months. The phasing of drawings and performance criteria are like those under Stand-By Arrangements, although phasing on a semiannual basis is possible. As of April 30, 2006 the outstanding credits under this type of funding was SDR 7,477 mn.

Precautionary arrangements are used to assist members interested in boosting confidence in their economic management. Under a Stand-By or an Extended Arrangement that is treated as precautionary, the members agrees to meet the conditions applied for such use of the IMF's resources but expresses its intention not to draw on them. This expression of intent is binding; consequently, as with an arrangement under which a member is expected to draw, approval of a precautionary arrangement signifies the IMF's endorsement of the member's policies according to the standards applicable to the particular form of arrangement.

ii. Special Lending Facilities and Policies

The Supplemental Reserve Facility (SRF) was introduced in 1997 to supplement resources made available under Stand-By and Extended

Arrangements in order to provide financial assistance for exceptional balance of payments difficulties owing to a large short-term financing need resulting from a sudden and disruptive loss of market confidence, such as occurred in the Mexican and Asian financial crises in the 1990s. Its use requires a reasonable expectation that strong adjustment policies and adequate financing will result in an early correction of the member's balance of payments difficulties. Access under the SRF is not subject to the usual limits but is based on the financing needs of the member, its capacity to repay, the strength of its program, and its record of past use of IMF resources and cooperation with the IMF. Financing is committed for up to one year, and repayments are expected to be made within 1 to 1 1/2 years, and must be made within 2 to 2 1/2 years, from the date of each drawing. For the first year, the rate of charge on SRF financing is subject to a surcharge of 500 basis points above the usual rate of charge on other IMF loans; the surcharge then increases by 50 basis points every six months until it reaches 500 basis points. As of April 30, 2005 the outstanding credits under this type of funding was SDR 4,569 mn, but by 2006 the figure was nil.

Contingent Credit Lines (CCLs) were established in 1999. Like the Supplemental Reserve Facility, the CCL is designed to provide short-term financing to help members overcome exceptional balance of payments problems arising from a sudden and disruptive loss of market confidence. A key difference is that the SRF is for use by members already in the midst of a crisis, whereas the CCL is a preventive measure solely for members concerned with their potential vulnerability to contagion but not facing a crisis at the time of the commitment. In addition, the eligibility criteria confine potential candidates for a CCL to those members implementing policies considered unlikely to give rise to a need to use IMF resources; whose economic performance-and progress in adhering to relevant internationally accepted standards-has been assessed positively by the IMF in the latest Article IV consultation and thereafter; and which have constructive relations with private sector creditors with a view to facilitating appropriate private sector involvement. Resources committed under a CCL can be activated only if the Board determines that the exceptional balance of payments financing needs faced by a members arisen owing to contagion-mat is, circumstances largely beyond the member's control stemming primarily from adverse developments in international capital markets consequent upon developments in other countries. The repayment period for and rate of charge on CCL financing are the same as for the SRF.

The Compensatory Financing Facility (CFF), formerly the Complimentary and Contingency Financing Facility (CCFF), provides timely financing to members experiencing a temporary shortfall in export earnings or an excess in cereal import costs, as a result of forces largely beyond the member's control. In January 2000, the Executive Board decided to eliminate the contingency element of the CCFF since it had rarely been used; see the discussion in this chapter. As of April 30, 2006 the outstanding credits under Contingent and compensatory funding was SDR 84 mn.

The IMF also provides *emergency assistance* to a member facing balance of payments difficulties caused by a natural disaster. The assistance is available through outright purchases, usually limited to 25 percent of quota, provided that the member is cooperating with the IMF to find a solution to its balance of payments difficulties. In most cases, this assistance has been followed by an arrangement with the IMF under one of its regular facilities. In 1995, the policy on emergency assistance was expanded to include well-defined post conflict situations: where a member's institutional and administrative capacity has been disrupted as a result of conflict, but where there is still sufficient capacity for planning and policy implementation and a demonstrated commitment on the part of the authorities; and where there is an urgent balance of payments need and a role for the IMF in catalyzing support from official sources as part of a concerted international effort to address the post-conflict situation. The authorities must state their intention to move as soon as possible to a Stand-By, Extended, or Poverty Reduction and Growth Facility Arrangement.

The **Emergency Financing Mechanism** (EFM) is a set of procedures that allow for quick Executive Board approval of IMF financial support to a member facing a crisis in its external accounts that requires an immediate IMF response. The EFM was established in September 1995 and was used in 1997 for the Philippines, Thailand, Indonesia and Korea, and in 1999 for Russia.

iii. Poverty Reduction and Growth Facility

On November 22, 1999, the Enhanced Structural Adjustment Facility (ESAF) the IMF's concessional financial facility to assist poor countries facing protracted balance of payments problems-was renamed the Poverty Reduction and Growth Facility (PRGF) and given a more explicit antipoverty focus. PRGF-supported programs are expected to be based on country-designed poverty reduction strategies, and formulated in a participatory manner involving civil

society and develop mental partners. The strategy, to be spelled out in a Poverty Reduction Strategy Paper produced by the borrowing country in cooperation with the World Bank and the IMF, should describe the authorities' goals and macroeconomic and structural policies for the three-year program to be supported by PRGF resources, as well as the associated external financing needs and major sources of financing. PRGF loans carry an interest rate of 0.5 percent a year and are repayable over 10 years with a 5 1/2-year grace period on principal repayments. As of April 30, 2006 the outstanding credits under this type of funding was SDR 3,819 mn.

iv. SDR

Special Drawing Rights (SDRs) add to global liquidity. The SDR is an international interest bearing reserve asset created by the IMF following the First Amendment of the Articles of Agreement in 1969. All transactions and operations involving SDRs are conducted through the SDR Department. The SDR was created as a supplement to existing reserve assets and is allocated by the IMF to members participating in the SDR Department. Its value as a reserve asset derives, essentially, from the commitments to participate, to hold and accept SDRs and to honor various obligations connected with its proper functioning as a reserve asset.

The SDR is an international reserve asset created by the IMF under the First Amendment to its Articles of Agreement to supplement other reserve assets. First allocated in January 1970, total SDR allocations currently amount to SDR 21.4 billion. SDRs are held largely by member countries-all of which are participants in the SDR Department-with the balance held in the IMF's General Resources Account and by official entities prescribed by the IMF to hold SDRs. Prescribed holders do not receive SDR allocations but can acquire and use SDRs in operations and transactions with participants in the SDR Department and with other prescribed holders under the same terms and conditions as participants.

The SDR is the unit of account for IMF operations and transactions. It is also used as a unit of account, or the basis for a unit of account, by a number of other international and regional organizations and international conventions. In addition, to a very limited extent, the SDR has been used to denominate financial instruments created outside the IMF by the private sector (private SDRs). As of April 30, 2006 the SDR allocation to participating members totaled SDR 21.4 bn, while IMF itself held SDR 3.9 bn.

Uses of SDRs:

Participants and prescribed holders can use and receive SDRs in transactions and operations by agreement among themselves. Participants can also use SDRs in operations and transactions involving the General Resources Account, such as the payment of charges and repurchases. The IMF ensures, by designating participants to provide freely convertible currency in exchange for SDRs, that a participant can use its SDRs to obtain an equivalent amount of currency if it has a need because of its balance of payments or its reserve position or developments in its reserve.

7.1.5 World Trade Organization (WTO)

World Trade Organization, WTO, came into being on 1st January 1995 to formulate uniform laws to govern trade among countries. The World Trade Organization (WTO) is an international organization that establishes rules for international trade through consensus among its member states. It also resolves disputes between the members, which are all signatories to its set of trade agreements. The organization's headquarters are located in Geneva, Switzerland.

There are 150 member states in the organization, the latest to join being Vietnam on January 11, 2007. It is steered by its Director-General. Since its inception in 1995, the WTO has been a major focus for protests by civil society groups in many countries.

Along with WB and IMF, WTO ought to have been created but its creation was blocked by the US then in 1944. But instead the General Agreement on Tariffs and Trade (GATT) was established. Seven rounds of negotiations occurred under the GATT before the eighth round - known as the Uruguay Round — which began in 1986 and concluded in 1995 with the establishment of the WTO. The GATT principles and agreements were adopted by the WTO, which was charged with administering many trade agreements and resolving trade disputes between member countries. Unlike the GATT, the WTO has a substantial institutional structure.

The topmost decision-making body of the WTO is the Ministerial Conference, which has to meet at least every two years. It brings together all members of the WTO, all of which are countries or separate customs territories. The Ministerial Conference can make decisions on all matters under any of the multilateral trade agreements. The WTO oversees about 60 different agreements

which have the status of international legal texts. Member countries must sign and ratify all WTO agreements on accession.

a. Objectives of WTO

The WTO states that its aims are to increase international trade by promoting lower trade barriers and providing a platform for the negotiation of trade and to their business.

The WTO discussions should follow these **fundamental principles of trading**:

- A trading system should be free of discrimination in the sense that one country cannot privilege a particular trading partner above others within the system, nor can it discriminate against foreign products and services.
- ii. A trading system should tend toward more freedom, that is, toward fewer trade barriers (tariffs and non-tariff barriers).
- A trading system should be predictable, with foreign companies and governments reassured that trade barriers will not be raised arbitrarily and that markets will remain open.
- A trading system should tend toward greater competition.
- A trading system should be more accommodating for less developed countries, giving them more time to adjust, greater flexibility, and more privileges.

TRIPs and TRIMs of WTO have far reaching implication for global business and finance.

7.1.6. Regional Trade Blocs:

Trade blocs are very common today due to North-South, North-North, South-South coalitions. North denotes the well developed countries and South denotes the less developed countries. There are many regional blocs and trade among the members of the bloc is called trade within a bloc.

There are many trade blocs like i. NAFTA – the North Atlantic Free Trade Agreement formed in 1988 with USA, Canada and Mexico as members; ii. EU –the European Union with 15 countries viz, Belgium, France, Germany, Italy, Luxembourg, Netherlands, England, Spain, Portugal, Ireland, Finland, Austria, Sweden, Denmark and Greece as members; iii. LAFTA – the Latin American Free Trade Area established in 1961 with Argentina, Brazil, Mexico, Chile, Peru, Uruguay, Paraguay, Colombia and Equator as members; iv.

ANZCERTA –the Australia New Zealand Closer Economic Relations Trade Agreement with Australia and New Zealand as members created in 1988; v. GCC - the Gulf Co-operation Council consisting of gulf countries as members; vi. CEEAS Economic Community of Central African States; vii. CARICOM – the Caribbean Common Market with countries in Latin America as members; viii) ASEAN – the Association of South East Nations with membership of Indonesia, Malaysia, Philippines, Singapore, Thailand and Brunei; ix) SAARC – the South Asian Association of Regional Corporation with India, Bangladesh, Nepal, Bhutan, Sri Lanka, Maldives and Pakistan as members; and x. SADCC – the South African Development Coordination Conference with members of Sub-Saharan countries are some regional blocs. Here region means aggregation of countries.

Aims of Trade Blocs

The regional blocks aim for free trade among members of the regional bloc, common external commercial (tariff and quota) policies for member countries, free mobility of factors within the bloc, harmonized economic policies for members of the bloc and a supranational organizational structure for economic policy formulation, implementation and control amongst the members of the bloc. From free trade area, to customs union to common market, to economic union and to total economic integration (with common currency as in the case of EU with Euro as the currency for the 12 countries of EU since 1999) are the stages of successive economic integration of countries in the bloc.

Trade within a bloc or region and trade between the blocs or regions are poised for growth with the successive levels of integration. Inter-regional trade has grown since the emergence of economic blocs or regions, because it is easy to push trade among blocs or regions than among individual countries because in the case of latter negotiations with each and every country are needed whereas in the forever, negotiations among blocs of nations are enough.

Trade blocs exist side by side WTO, which is but a mega bloc of over 150 countries. Uniform law and procedures, regional specialization on the basis of resource endowments, etc give a boost to inter-regional trade.

7.1.8. Central Banks of nations

The central banks bigger nations, like the Federal Reserve of the USA, the European Central Bank of the in-11 of the 15 European Union countries,

Bank of England, Reserve Bank of India, etc influence the global finance through their normal and regulatory monetary policies and activities. The foreign exchange rates scenario that exists in any country is at least indirectly influenced by the central banks, which in turn have implications for global finance. Besides their actions on money laundering and similar issues have immense impact over multinational finance.

7.1.9. Investment Bankers

Big investment bankers like Morgan Stanley, Merrill Lynch and others have become global drivers of finance. On their advices only cross border mergers and acquisitions involving billions of dollar takes place. Besides they mobilize and invest funds globally, much facilitated by the policy of globalization, liberalization and privatization.

7.2. Instruments

Multinational Finance uses a multitude of equity, debt and derivative instruments. GDR, ADR, IDR are global equity instruments, Foreign Currency Bonds, Foreign Currency Convertible Bonds, Euro Commercial Papers, etc are debt instruments and there are foreign currency options, swaps, futures and so on. These instruments are later described in detail.

7.3. Multinational Financial Markets

The Multinational Financial Markets are distributed at about a dozen places in the world where global investments and sourcing of global funds are easily carried out. New York, London, Brussels, Tokyo, Singapore, Mumbai etc are global financial nerve centres. Bench mark interest rates like, LIBOR, TIBOR, NIBOR, SIBOR, MIBOR, BIBOR and others emerge at these places. More about these markets will be taken up later. The $ 1.5 trillion a day transaction foreign exchange market is an integral part of multinational finance, with speculative and transactional elements courting together.

7.4. Multinational Financial Technology

Multinational Financial scene is marked by a great technological thrust, especially Information Technology which makes it possible to trade in funds, securities and financial assets sitting at one's own place seamlessly. Funds can be instantly transferred across borders, securities can be bought and sold similarly on real-time basis and so on. As information spread is rapid, markets are becoming more efficient. This is a great environmental factor.

7.5. Episodic Factors

Multinational finance is full of episodic developments, both positive and negative, which greatly influence the flow of funds across nations, cost of funds, stock market reactions and so on. The collapse of the Barings Bank, the Mexican meltdown, Southeast Asian crisis, the fall of Enron, globalization efforts by China, Russia and other communist countries, investment stake by New York Stock Exchange in the National stock Exchange of India, the introduction of Euro currency, the failure of Doha round talks of WTO, etc are events that very much influence multinational investment and financing as well.

7.6. Major Trends in Multinational business since 1980s

The 1980s brought a rapid integration of Multinational capital and financial markets through a combination of strategies of *Liberalization, Privatization* and *Globalization* (in short **LPG**). Economic *Liberalization* reduces government control at both the regional and global levels. A classic example is the largely deregulatory environment of banks embarked since the 1990s. *Privatization*, the process by which Governments divests itself of the ownership and operation of a business ventures by turning them over to the free market system, is greatly being followed to ensure that efficiency is augmented through market mechanism. *Globalization* is a strategy for integrating with the world markets for resources as well as outputs. Globalized financial markets initially came from the governments of major countries that had begun to deregulate their foreign exchange and capital markets. A true globalization should involve a free flow of trade (Multinational Trade) free flow of capital (Multinational Finance) and free flow of natural persons (Multinational Human Resources) across the globe.

7. 6.1. Issues and Concerns of Globalization

Issues and concerns of globalization are: change, efficiency, stability, development, sustenance and equity. These are elaborated below.

i. Change: The globalization process emphasized change-change from inefficiency to efficiency; change from bureaucratic delay to business like speed; change from structural rigidity to developmental flexibility; change from rules-frame to profit orientation; change from governmental intervention to market determination; change from plural layers of decision to a de-layered decision process; change from inward-looking policy to outward-looking policy; change

from import-substitution to export maximization; change from insulated economy to a competitive economy; change from tall talks to peak performance; change from local resource dependence to access to global resource; change from often concealed social goals to more transparent economic goals; change from government ownership to private (people) ownership, change from centralization to decentralization; change from high taxation to low taxation and so on.

ii. Efficiency: Efficiency is the ratio of output to input. Higher this ratio, greater is efficiency. Efficiency drive is very important in today's context of limited global resources, but unlimited global needs. So, global resources must be efficiently used. Efficiency becomes the driving force of industry, trade, institutions and firms. Capital efficiency, labor efficiency and managerial efficiency lead to operative efficiency resulting in cost efficiency. Cost efficiency helps reaping market efficiency leading to profit efficiency. With profit efficiency developmental efficiency takes place, for with profit modernization, expansion and diversification are possible leading to efficiency.

iii. Stability: Stability of economies is one of the concerns of globalization. Economies must be able to stand on sound footing. Every economy must have economic, political and social stabilities. In other words, the crises of the Mexican type or the South East Asian type should not occur or recur. This needs effective management of globalization. Fiscal stability, structural stability, macro-economic stability, financial stability, etc are certain forms of stability. Globalization process should address these, if the latter has to be in the agenda of all countries.

iv. Development: One of the concerns of globalization is global development. Now a basic question arises. What is development? Development is growth plus change. Growth in national/global income, in national/global savings, in national/global investment, in employment, in exports, forex reserve, in return on investment in public sector, in infrastructural facilities and so on constitute one aspect of development. The other is positive change in composition of gross global product, in exports, in imports, in public and private sector, change in government finances, change in tax base, tax structure and tax level, change in technology and employment pattern and so on constitute another aspect of development. This development is sought to be achieved with local and global resources, with global trade and technology, with less government intervention

and more people participation, with more private sector role and less public sector distortion, with more transparent policy and less control, with reduced tax and increased opportunity and so forth. The development goal is to be achieved with people namely the savers, investors, bankers, business persons, trading community, managers, workers and of course with responding bureaucrats. In other words, development goal should be made top on the agenda for action of people.

v. Sustenance: Sustained development is much more important than quick-fix development. Sustainable development ensures balance on all resources - physical and human. There is no over-exploitation of any resource. Globalization should ensure this. Otherwise, globalization might lead to collapse of economies.

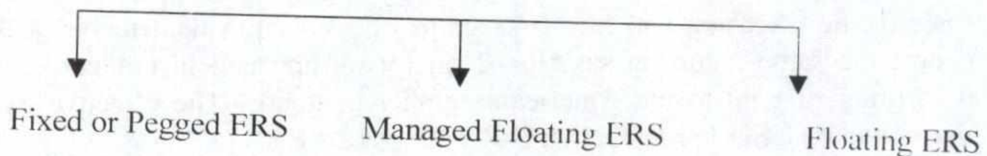
vi. Equity: Equity refers to fairness. In the economic globalization context, equity refers to equity in sharing the rewards of globalization across countries, sectors, business units and all stake-holders. Usually the globalization process is tilted in favour of the west and the non-primary sectors and against the less developed and primary sector. This issue must be seriously addressed sooner than later so that globalization process goes at the right pace.

8. MULTINATINAL FINANCIAL SYSTEM

Multinational Financial system predominantly deals with the exchange rate or the currency system.

Exchange rate system refers to the assemblage of institutions, investments and their interplay on exchange rate behaviour. Traditionally there are two extreme systems at the poles, namely fixed rate system and floating rate system and in between diverse combinations exist. These systems are diagrammatically presented and discussed below.

Diagram: Exchange Rate System (ERS)



8.1. Currency Pegging or Fixed Exchange Rate System

Pegging means fixing the value of one thing by reference to another thing. Under currency pegging, the external value of a currency is fixed, that is pegged, at certain values by reference to one standard or other. Gold standard, Purchasing power parity and IMF Pegging system and other forms of currency pegging existed earlier. The pegged rates remain fixed for a time, until re-fixed or re-pegged.

8.1.1 Pegging in Gold Standard:

Under the Gold Standard or mint parity arrangement, rate of exchange is determined by reference to the gold contents of the two currencies, as each currency is expressed in terms of weight of gold or gold content of certain purity. Gold standard prevailed up to 1931. To understand the methods, let us take an imaginary example. Let the gold content of Re 1 = 0.01 gram of gold and US dollar (USD) 1 = 0.45 gram of gold. Then the rate of exchange between these two currencies under the Gold Standard will be :

$$\text{USD} = \frac{0.45 \text{ gram of gold}}{0.01 \text{ gram of gold}} = \frac{45}{1} = \text{Rs. } 45$$

$$\text{Re} = \frac{0.01 \text{ gram of gold}}{0.45 \text{ gram of gold}} = \text{USD}1/45$$

The rate of exchange is also known as the mint par of exchange, for at the Indian mint Re 1 will be = 0.01 gm of gold and at US mint $1= 0.45gm of gold.

The actual exchange rate in the forex market is not to be however, USD 1 = 0.45. but slightly different due to bank commission. But bank commission can not exceed certain limits as merchants can export or import gold to settle international payments incurring expenses of shipping and insurance when the commission charged is felt to be high. Suppose banks charge 10% commission and that to get USD 1, a merchant has to part with Rs. 45 plus 10% Rs.49.5. Instead, the merchant can buy 0.45 gram of gold equivalent to one USD and export the same incurring say, Rs. 2 on forwarding and insurance cost of the 0.45 gram of gold to the American supplier of goods. The effective exchange rate comes to USD 1=Rs. 47, that is Rs. 45 +Rs 2 =Rs. 47.

8.1.2. Pegging in Purchasing Power Parity:

Under the Purchasing Power Parity method, adopted when paper currencies are used, external value of currency is determined on the bass of its internal value. As there is no gold convertibility option, a case with Gold standard, currencies have to be valued on the basis of their respective internal value either by reference to particular commodity or basket of commodities.

Say, a bale of cotton is sold for Rs. 23,000 in India while the same is USD 500 in USA. Then, Rs. 23,000 = USD 500 or Rs. 46 = 1 USD. If the price of cotton rises in India, the value of rupee falls against USD, if there is no sympathetic rise in price on the basis, of price of a single commodity or basket of commodities internationally traded is not god, for only part purchasing power is concerned. So, exchange rate computation and adjustment based on price index numbers (CPI, WPI, CLPI, etc) is considered. Suppose in 1990 1 USD = Rs. 24 and the price indices in both USA and India =100. By 2006 the index number of Indian prices, say has become 280, while that of USA is 150. Then 2006 exchange rate would be: USD 1 = [280/150] x Rs. 24 = Rs. 44.8 and Re. 1 = [150/280]x 1/24 = USD 1/44.8 or 0.0223.

The two World Wars did a major havoc to exchange rates. To ensure a degree of stability, under the IMF banner, currency pegging was resorted to in 1945.

8.1.3 Currency Pegging under the IMF Charter:

Pegging, as was already referred, means fixing. Currency pegging therefore, is referred to fixing the external value of a currency by the monetary authority of a nation. Par pegging, under pegging and over pegging are the forms of pegging. Say, as per the real values USD 1 = Rs. 45. This is the par value equation of the currencies. If however, 1 USD is made equal to say, Rs. 47, the Rupee is said to be under pegged or the dollar is said to be over pegged and if USD 1 is made equal to Rs. 43, the rupee is over pegged and consequently dollar is under pegged. With this small introduction to pegging, let us move to discuss currency pegging under the IMF charter.

Currency pegging system, under the IMF charter required every member-country to fix and maintain the par value of its currency in terms of gold or dollar. This system of fixed exchange came to be known as pegged exchange rates or par values. The schemes provided that:

i. Each member country should declare the external value of its currency in terms of gold or US dollar. This was known as the 'par value' of the currency.

ii. The value of US dollar was fixed at USD 35 per ounce of the gold. The USA committed itself to convert dollars into gold at the above official price in.

iii. Following the above, the monetary reserves of member-countries came to consist of gold and US dollars. Thus US dollar got the position of a reserve asset.

iv. Each country agreed to maintain the market value of its currency within a margin of 1% of the par value. Where the variation in the market was more than the permitted level, the country should take steps to devalue the currency to correct the position.

v. Members were free to devalue their currencies. But, if the evaluation exceeded 10% of the par value, approval of the IMF should be obtained. The IMF might approve it or advise a lower rate. However, it had no power to reject the proposal. At times IMF forced countries to under-value currencies if it felt these currencies did not deserve to be worthy of the stated values.

vi. The IMF granted short-term financial assistance to its members to tide over their temporary balance of payments problems. For chronic problems the members were expected to use permanent solutions like devaluation.

This system was known as adjustable pegged exchange rate with a band of 2%. The system worked till 1971. It could not continue as mining of gold came to stop and at 1 ounce of gold being equal to USD 35, it was highly uneconomical to mine gold. Dollar suffered setbacks several times creating all round ruptures. So, both the parameters of the IMF currency pegging. Gold and Dollar came under severe beating. As USA was not interested in devaluing dollar and as it was unable to stem its current account deficit, member-countries of IMF experienced volatile exchange rate scenario. In Aug.1971, USA unilaterally suspended convertibility of dollar into gold and that created a crisis in the exchange rate system as a whole, setting on the search for other alternatives.

8.1.4 Pegging in Smithsonian Agreement:

The crisis, referred at above, was resolved through Smithsonian Agreement in Dec.1971 concluded by the "Group Ten" (Top 10 developed countries: USA, Canada, UK, West Germany, France, Italy, Netherlands, Belgium, Sweden and Japan). The agreement provided for rising the price of gold from 1 ounce = USD 35 to 38. The exchange rates were re-pegged to gold and dollar. Japan and West Germany revalued their currency upwards by 7.66% and 4.61% against dollar. This meant their currencies got revalued upwards by 16.88% and 12.6% in relation to gold, respectively. The Smithsonian Agreement provided for higher 2.25% rate fluctuation on either side of the pegged value, thereby giving more room for flexibility. This is also known as *Crawling Peg Exchange Rate System.* This had the advantage of dampening speculative movement of capital from weak currency areas to strong currency areas as the exchange rates were more flexible than Adjustable Peg System which provided narrower band. The EEC (European Economic community or the later re-named as European Union) Countries wanted to narrow the range of fluctuations among the EEC currencies. They agreed upon a1.125% spread between EEC currencies. Thus, within the dollar parity rates providing the maximum bands (2.25%), EEC currencies floated amongst themselves, within a smaller range of 1.25%. The former rates came to be known as wall of tunnel and the latter as snake. Thus the phrase, *'European Snake in the Smithsonian Tunnel' or simply 'snake in the tunnel'* got formed.

As USD continued to face pressure due to USA's heavy current account deficit, by Feb. 1973, USD was devalued by 10% against gold and with that Smithsonian Agreement came to an end. Dollar was devalued by 10% and new parity at USD 42.33 = 1 ounce of gold was fixed unilaterally by USA. But major countries of the World chartered own ways of managing the external values of their currencies. Japan, UK, West Germany, etc opted for floating their currencies.

8.1.5 Pegging with SDR:

The turmoil on the exchange rate scenario continued. In the on going search for a truly international currency, Special Drawing Rights, (SDRs) the currency of IMF emerged pushing down both gold and the Greenback, i.e.. the dollar. Exchange rates linked to gold was done away with in Nov. 1975. SDR emerged as the international currency, though no agreement on exchange rate

system was reached. USA advocated floating exchange rates and France advocated fixed rates and return to par values.

8.1.6 Basket Pegging:

Basket pegging involves the domestic currency is pegged to a basket of foreign currencies. When no international currency is strong and steady, basket pegging is resorted to. In such case, an intervention currency is needed for affecting any change or for maintaining the pegged values. The pegging is likely to have moderate effect on appreciation or depreciation in the external value of the domestic currency.

8.2 Merits and Demerits of Fixed or Pegged Exchange Rate System

The following are the benefits of fixed ERS:

i. The external value of the currency is fixed for a period of time and revised if need be, later. This rigidity takes away uncertainty from the market and puts in certainty instead.

ii. There is no place for speculative trade in fixed market with fixed exchange rate system.

iii. The country is protected from waves of rate instability from the rest of the globe.

iv. Global trade continues to spread as the market uncertainty of forex rate fluctuation is removed in total.

v. Sound domestic economic policies are forced to be followed, because to sustain fixed exchange rate system. These are very vital.

To maintain a fixed exchange rate system, strict exchange control regime, import control, monetary control, etc are needed. A fixed exchange rate is no good when external environment is changing. A continued fixed exchange rate system results in casualty to either the demand side or the supply side of the forex market. That is very bad even in the short-term.

8.3. Managed Floats

In April 1978, second Amendment to the IMF's Articles of Agreement came into effect and with that member countries were free to choose own exchange rate system. But member countries should ensure order and stability in exchange rate system. IMF has surveillance over the exchange rate policies

which are subject to regulations to keep the movements within limits. Under the system, some currencies were pegged to certain currency, some to the SDR, some to a basket of currencies and some subject to mutual intervention and some partially floating and partially pegged (i.e., dual exchange rate system).

8.4. Free Float

USD, Yen and Pound Sterling became floating since 1978. Under free floating exchange rates are determined by demand and supply forces of forex. Central banks do intervene, but at market determined rates only. Rupee became partially floating currency in 1992 on current account and near fully floating on current account only in 1993. Now in 2007, Rupee is freely floating barring few capital account transactions. But now and then people talk about full convertibility of rupee on capital account too. In a freely floating exchange rate system, market forces decide the exchange rate. Most nations now adopt this system. The system has both merits and demerits.

The *merits of floating exchange rate system* are:

i. The currency value is decided by market forces from time to time and that it is truly determined by market forces.

ii. There is no undervaluation or overvaluation, but right valuation, except under times of abnormal stresses, internal or external. So there is no need for protracted process of revaluation or undervaluation as is resorted to under fixed ERS or the IMF system.

iii. Exporters and importers get and pay, as the case may be, the right value and the system is equally poised in respect of both, unlike fixed ERS where with overvaluation of domestic currency, exporters benefit and with undervaluation the importers benefit.

iv. Floating ERS is an open-door policy and this attracts more flow of foreign capital and that domestic economy is poised for growth.

v. Floating ERS does not strain domestic economy or its fiscal policy regime much, as the exchange rate gets suitably altered. The Government does not feel the pressure of maintaining an unsustainable overvalued undervalued position of domestic currency.

vi. This system supports the more sustainable 'Export more and Import more' policy.

The *demerits of the floating system* are: i. No policy oriented political intervention in forex rates possible, ii. The market may go haphazardly volatile under pressure from invisible hands, iii. Speculation may go rampant, iv. Capital flight at will can cause havocs on the forex rate and forex reserve fronts and so on. These may turn into currency contagion as well.

8.5. Other Sub-sub-systems of Multinational Financial System

The multinational financial system consists of many other subsystems. The *finance sub-system* comprises of types, sources and cost of funds. This is dealt in Unit VI. The *investment sub-system* is comprising of investments types, hosts and benefits. This is dealt in Units II, III, IV and V. The *international monetary system* governing global payments, liquidity and stable exchange markets mostly monitored by the IMF deals with global monetary and liquidity issues for smooth international payments. Crises in payments due to debt burden or flight of capital were effectively handled by IMF earlier. This is dealt in an earlier part of this unit as such. The *institutional sub-system* comprises multilateral, regional, national and local institutions – intermediary, facilitating and regulatory institutions. This is also dealt earlier in this unit itself. The *instruments sub-system* comprising the types and features of investment instruments and financing instruments are also the components of multinational financial system. This part is dealt in Unit VI. Besides we have *multilateral financial system* dealing with the flow of finance from the multilateral banks like WB, IMF, etc, dealt in this unit itself. The *MNC financial system* deals with financial practices and processes of MNCs. This specifically addresses in Units II and IV. The *European Monetary system* is a multinational financial system as it governs the finances of several sovereign nations. These sub-systems must function in a synergistic fashion. This is already dealt in this unit itself.

9. GLOBAL FINANCIAL MARKETS

Prominent global financial markets like those in US, UK, EU and the like are dealt in this section dealing with the institutional background, instruments of finance, regulations prevailing, etc.

9.1. US (New York) Market

The US financial market is the largest and the most versatile financial system in the world. It has the broadest range of funding options to offer and some of the most sophisticated and innovative financial institutions. The

importance of the market is further enhanced by the dominant role played by the US dollar as the vehicle currency in international transactions . At the same time, it is not a market which is readily accessible by borrowers from developing countries like India except perhaps those with the highest ratings and sovereign guarantees.

System: In some ways the US financial system is perhaps the most free system. Institutions enjoy completion operational freedom in terms of products and instruments offered, pricing etc. In other ways, it is subjected to a host of supervisory regulations both from the Federal and State authorities. The core of the regulatory apparatus is protection of depositors and investors.

Institutions: The financial system consists of network of commercial banks, domestic and foreign, investment banks in a variety of non-bank financial institutions – insurance companies, pension funds, mutual funds, savings and loan associations.

Regulations: American banks are subject to perhaps the world's most stringent regulatory framework both at the Federal and state levels. The three regulatory/ supervisory authorities are the controller of currency, the Federal Reserve Board (the Central Bank equivalent of the USA) and Federal Deposit Insurance Corporation. The strict demarcation between commercial and investment banking introduced in 1933 by the enactment of the Glass-Steagall Act was removed by the passing of the Gramm-Leach-Bliley Act 1999. Deposit insurance introduced by the Glass-Steagall Act provides protection to small depositors is a unique feature of the American banking system. Geographical expansion of branches of commercial banks is regulated.

SEC: Capital markets are subject to regulation by the Securities Exchange Commission (SEC). The emphasis is on full disclosure for investor protection. All public issues have to be registered with the SEC and the required information must be fully disclosed at the time of issue and periodically updated thereafter. "Shelf registration" is possible under which the issuer prepares all the necessary documentation in advance of the issue. (Supplemental documentation must be provided at the time of issue).

Funding options: In terms of funding options, the dollar sector. both domestic and Eurodollar offers a wide choice and considerable depth. However, due to the strict regulation and disclosure requirements, the domestic dollar market is not easily accessible while the Eurodollar segment is more freely accessible. This

might be clear when one considers the fact that while GDR market has been tapped by many Indian firms, now only the ADR market is tapped and that too by only one Indian firm, Infosys Technologies, in March 1999.

Short term Credit instruments: Treasury Bills, Certificate of deposits, Commercial Paper, Banker's Acceptances, Eurodollar Deposits, Repos and Reverse Repos, Federal Funds, Broker's call are short term credit instruments in the US financial market. Vibrant secondary market exits for most ensuring liquidity. Returns vary depending on the risk. The **government securities, generally, yield low absolute return**.

i. Treasury Bills: Government issues – *Short term;* 91 day, 182 day bills issued weekly and 52 week issued monthly- *Highly secured– Issued at a discount* to face value - At maturity Government pays face value- The difference between purchase price and selling/ face value is the return- *Low return* – Competitive bid or noncompetitive bid to buy when government issues – More liquidity with active secondary market.

ii. Certificate of deposits: Time deposits with banks/ *Short or long term* – Denominated – Large denomination . $100,000 are negotiable – Shorter periods have higher liquidity – Treated by FDIC as deposit in a bank so have insurance upto $100,000.

iii. Commercial Paper: *Maturity maximum 270 days* – Issued by *high rated corporate bodies* at a discount to face value - The difference between purchase price and selling/ face value is the return- High Safety; Low return. *More liquidity* with *active secondary market.*

iv. Banker's Acceptances: An order by a bank customer to the bank to a certain sum to a stated party. When the bank accepts the order and the instrument is stamped 'accepted', it becomes live and can be traded in secondary markets as well. The difference between purchase price and selling/ face value is the return. *More Safety. Low return . More liquidity* with active secondary market

v. Eurodollar Deposits: Dollar deposits outside the USA with US or non USD banks. A higher deposit rate is normally got. Now the instrument is called *external currency deposits.* That is *any currency deposits* outside *the national boundary of that currency.*

vi. Repos and Reverse Repos: Repos are agreements to sell government securities *(disinvestment)* with the undertaking to repurchase *(Repos), resulting*

in investment, the next day by one dealer in the security from another dealer. *Reverse Repos* are buying the securities *(investment)* with undertaking to sell *(disinvestment)* the next day. High liquidity and safety– Low return.

vii. Federal Funds or shortly, Fed funds: Deposits with the federal reserve by commercial banks and others who are members of the federal reserve system. *Safe with Low return-* The prevailing *interest rate* is considered as a *barometer of the money market* rates.

viii. Broker's call: Lending to stock brokers on the security of stock bought by a banker, with repayment on call by the banker. *The interest rate is 1% point more than T-bill rate*.

Long term Credit Instruments: The debt securities give a return in the form of periodic interest income. Since the rate of interest is fixed or the interest is calculated according to a fixed formula, the securities are called fixed income securities. *There are government, quasi-government and private debt market securities.* The risk levels vary. So do the return levels too.

Treasury Notes, Treasury bonds, Federal Agency Debt, Municipal bonds and Corporate bonds are the broad classes of securities.

i. Treasury Notes: Also called T-notes. Maturity upto 10 years. Denomination in $1000 or more. Semi-annual interest payments – No risk – Low return- Active secondary market – Market price may be more or less than the face value depending on whether the market interest rate is less or more than the interest on the notes concerned.

ii. Treasury bonds: Also called T-bonds. Maturity from 10 to 30years. Denomination in $1000 or more. Semi-annual interest payments – No risk – Low return- Active secondary market – Market price may be more or less than the face value depending on whether the market interest rate is less or more than the interest on the notes concerned. Can be called during the last five years of the bond's tenure.

iii. Federal Agency Debt : Bonds issued by certain Government agencies with the government backing. Hence high credit rating. *Fannie Mae* (Federal National Mortgage Association–or FNMA, *Ginnie Mae* (Government National Mortgage Association–or GNMA), *Freddie Mac* (Federal Home Loan Mortgage Corporation or FHLMC) etc in the USA come in the category.

iv. Municipal bonds: Bonds issued by municipalities. Comparatively low risk.

v. Junk Bonds: For a time, there was a flourishing market in the so called "high yield securities" (a more forthright description being "junk bonds") issued by borrowers with low credit ratings. A number of these issues were made during the years when leveraged buyouts (LBOs), mergers and acquisitions activity was at a peak. Following some failures and bankruptcies the, activity has practically come to a halt and prices in the secondary markets have dropped substantially.

vi. Syndicated loans: Syndicated Bank loans are available in the domestic dollar segment. Aside from these market-based options, the U.S. has a comprehensive export finance structure aimed at encouraging exports of American capital goods. EXIM USA, Private Export Funding Corporation (PEFCO), Foreign Credit Insurance Association etc. are the institutions involved in arranging export finance.

In the domestic dollar market, the three main funding avenues to foreign borrowers with sufficient credit reputation are dollar bonds (*"Yankee Bonds"*), MTNs and commercial papers. Top rated corporate borrowers have successfully issued dollar bonds in the domestic dollar market. The volume of new Yankee bond issues is ever rising. The fast growing MTN market has also been tapped by foreign borrowers, especially, the sovereign entities, that is Governments. MTNs are usually issued under the shelf registration scheme and, although they are designated "medium term", maturities can range upto 15 years. Amounts involved can be as small as $10 million. However, these avenues involve a lot of preparatory work and a high credit rating is absolutely essential to get reasonable terms. It is possible to issue bonds denominated in foreign currencies in the U.S market and there have been public offerings in Australian dollar (*the Yankee Kangaroo bond*), New Zealand dollar, Canadian dollar and the ECU. Most of these were subsequently swapped into U.S dollars. All Yankee bond issues as well as issues in foreign currencies, with a few exceptions (e.g. issues by super nationals like the World Bank), have to be registered with SEC and are subject to the usual disclosure requirements.

QIB: Securities can be offered without SEC registration to a limited number of sophisticated institutional investors with proven capability to make informed decisions. the so-called "qualified institutional buyers". These are private placements. As of now there are strict restrictions on resale of securities purchased which may be eased to some extent in the near future.

Market institutions: The American Stock Exchange, New York Stock Exchange, New York Mercantile Exchange, New York Futures Exchange, Philadelphia Board of Trade, the Chicago Board of Trade, Chicago Board of Options Exchange, Chicago Mercantile Exchange, International Monetary Market, are important institutions. There are famous merchant banking houses, options markets in commodity and financial product categories, futures exchange again in commodity and financial product divisions, and so on.

India and US financial market: It has been estimated that more than two-thirds of India's commercial borrowings are in dollars, of which, more than two-thirds are in the form of syndicated Eurodollar loans, the rest being FRNs, NIFs, Eurodollar are commercial paper and a few Eurodollar bonds. In 1989, a few leading Indian institutions obtained ratings from either of the two ratings agencies in the U.S. (Moody's and Standard & Poor) to qualify for access to the domestic dollar market. In March 1999, Infosys Technology Ltd. made an ADR issue, the first ever equity issue in the US. This is followed suit by many other companies. In the recent years many Indian firms have successfully tapped this market at very competitive rates. More recently the New York Stock Exchange has acquired a stake in the NSE of India.

9.2 The London (Sterling) Market

The London financial Market is known for its maturity and hence its benchmark standards.

System: The London financial market is a well developed system. The Bank of England, the London Stock Exchange, the London International Financial Futures Exchange, etc are all very reputed institutions of long standing. The system is well knit and streamlined one. Unit banking system is adopted. The ' big five', namely the five big banks constitute a very important sub-system.

Significance: London was the international capital market throughout the 19th century and the first part of the 20th century. After World War II, its importance declined as exchange controls and control on capital exports prevented the reopening of the foreign sterling bond second which, prior to the war, used to be accessed by a large number of foreign governments and their agencies.

Euro-sterling: The Eurosterling market can be said to have emerged in a meaningful way after 1979 when exchange controls were lifted. However, the market remained volatile reflecting the underlying uncertainties about the British

economy and gyrations of sterling against major OECD countries. The market is gradually gaining in strength since Britain's entry into the Exchange Rate Mechanism of EMS and the consequent stabilization of the Pound.

Control: Though in principle there are no restrictions on who can borrow and invest in the sterling market, Bank of England governs access and enforces certain procedures.

Instruments: In the Eurosterling sector, short term (upto five years), and medium term (between 5 and 10 years) bonds constitute one market segment while long term bonds extending upto 20 years constitute the other market segment. In the former, a number of issues are linked to currency swaps. Sterling FRNs are also an important market particularly in combination with interest rate swaps. Equity-linked convertible bonds are another vehicle. The foreign bonds issued in UK are called as *"bull-dog"* bonds. The sterling commercial paper sector has been in operation since 1986. Interest rate futures in euro-dollar, sterling and Euro, options in Yen, US Dollar, Pound, Euro etc are elaborately traded.

Borrowers: Borrowers in all these markets have been supranationals, sovereign governments, financial institutions and non-financial corporations. Borrowers with high ratings have found considerable investor interest at very attractive margin over UK government securities (Gilts). Lesser rated corporations have also been successful in issuing short and medium term bonds. Foreign issues in the domestic sterling market (called "Bulldog" bonds) have largely come from sovereign borrowers. However, lately, corporations and others have tapped this market.

Benchmark: The hall mark of London market is the LIBOR, (London Interbank Offer Rate), which is an international bench mark so far as interest rate for borrowers is concerned. Similarly, LIBID (London Interbank Bid) is the bench mark deposit rate.

Institutions: Baltic International Freight Futures Exchange, London Grain Futures Exchange, London Futures and Options Exchange, London Metals Exchange, London Traded Options Exchange, etc are other institutions of repute.

9.3. The Japanese (Tokyo) Market

The Japanese financial market is a bit conservative, but has enormous resource base, thanks to its current account surplus.

System: The Japanese financial markets are among the world's most strictly regulated and underdeveloped markets until recently. Expansion and deregulation of various segments has led to integration of the financial system with the international markets. Still the Japanese financial system retains some vestiges of earlier rigidities. On the other hand, there is considerable flexibility both in the attitudes of the bankers and occasionally even in the application of rules and guidelines.

Ministry of Finance: The Japanese Ministry of Finance (MoF) monitors the system closely. In the matter of laying down criteria for deciding who is eligible to borrow as well as in deciding the financial terms of an issue the MoF has substantive say. Even the Euroyen segment is monitored and to an extent regulated by the MoF.

Instruments: In the domestic yen market, funding options available to foreign borrowers are bonds and loans. *Samurai Bonds* are foreign yen bonds issued by non-resident entities in the Japanese market by way of a public offering. The MoF lays down eligibility criteria in terms of minimum rating from Japanese or US rating agency, the amount and tenure of the issue. It also regulates the timing of the issue. Pricing of the issue is done in the light of market conditions and with reference to the Long Term Prime Rate (LTPR) and the yield from seasoned Samurai bonds with equal credit rating. Elaborate underwriting and selling arrangements have to be made and documentation prepared. The cost of the issue therefore tends to be quite high when all the underwriting fees, selling commissions and other expenses are worked in some reform proposals are in the offing to reduce costs to foreign borrowers.

Private Placement: The counterpart in Japan of the U.S. private placement issues are the *Shibosai Bonds* offered to a restricted segment consisting of institutional investors. All aspects of the issue – required minimum rating, size, maturity, and coupon – are governed by the MoF guidelines. Pricing formulas (i.e. coupon fixation) are quite elaborate. The cost of issue is relatively smaller. Foreign bonds issued in Japan are called "*Samurai*" bonds.

Euroyen Market: The Euroyen bond market, though established as early as 1977, become really accessible to non-Japanese entities only in 1984. The market grew rapidly thereafter but continued to be under close supervision by the MoF. Over the years, the restrictions have been gradually relaxed and new instruments (Euroyen FRNs, zero-coupons etc) have been allowed to develop.

Pricing of the issues is decided by negotiations between the borrower and the underwriters and maturities range from 4 years upwards.

Syndicated Loans: Syndicated yen loans are available both in the domestic and Euro segments. In terms of costs of syndication, documentation etc. loans are less expensive than bond issues. The MoF guidelines are also more lenient in respect of loans. Domestic yen loans are priced with reference to the LTPR while euroyen loans are linked to the LIBOR.

Institutions: The Tokyo Stock Exchange, the Tokyo International Financial Futures and Options Exchange, Bank of Japan, Tokyo Commodity Exchange, Osaka Securities Exchange, etc. are important institutions

India and Yen Market: Next to Eurodollar loans, the yen market has been the major source of external funding for Indian borrowers. Japanese capital market, EXIM bank, insurance companies and leasing companies have all been involved in arranging financing. IDBI made a Shibosai issue in 1984 and ONGC issued Samurai bonds in 1988. Other public sector and private sector borrowers have also made forays in yen finance from various sources.

9.4 European Financial Market

The European market is matured and known for its diversity until 2002. Since 2002 a new era has dawn over there with a new common currency replacing over a dozen national currencies. It unfolds a lot of opportunities.

Early System: The European Monetary system is the nucleus of the European Financial System. The EMS evolved in 1979 by the European Union. The European Currency Unit is the nucleus of the EMS. The ECU consisted of fixed units of currencies of member countries. The ECU was the intervention and settlement currency among the central banks of members of EU. 10 years later in 1989 European Monetary Union was created. The ultimate goal of the EMU was to replace all national currencies of EU by a common currency. And this happened in January 2000 with a truncated membership. That is all 15 members of EU have not joined the common currency arrangement. Only 11 joined together, leaving England, Italy and two other countries.

New System: The new system marks the launching of a new common currency, the **Euro**, the currency of twelve European Union countries, stretching from the Mediterranean to the Arctic Circle, namely, *Austria, Belgium, Germany, Greece*

France, Finland, Ireland, Italy, Spain, Luxembourg, the Netherlands, and Portugal.

Euro banknotes and coins have been in circulation since 1 January, 2002 and are now a part of daily life for over 300 million Europeans living in the euro area.

Legal steps and procedure to adopt Euro: The procedure set out in Articles 122 and 123 of the EC Treaty for the adoption of the euro by a particular Member State provides for the following steps:

At least once every two years, or at the request of a Member State with a derogation, the European Commission and the ECB report on the progress made in the fulfilment by the Member States of the "Maastricht" convergence criteria in accordance with the procedure established in Article 121 of the EC Treaty.

On the basis of a proposal by the Commission, and after consulting the European Parliament, the Council decides whether or not the country will adopt the euro.

The Council, after consulting the ECB, adopts the conversion rate at which the euro shall be substituted for the currency of the Member State concerned.

Convergence criteria: The Maastricht convergence criteria laid down in Article 121.1 of the Treaty are the following:

i. Price stability: Inflation rate not exceeding by more than 1.5 percentage points that of the three best performing countries.

ii. Public finances: Absence of excessive government deficit, which is defined in terms of the government deficit having to be below the reference value of 3% of GDP and the level and evolution of the government debt compared to the reference value of 60% of GDP.

iii. Exchange rate stability: Observance of the normal margins of the exchange rate mechanism of the EMS without severe tensions of devaluation for at least two years;

iv. Long term interest rates: Not exceeding by more than 2 percentage points that of the three best performing countries in terms of price stability.

The Treaty moreover requires an examination of the compatibility of the country's national legislation, including the statutes of its national central bank, with the relevant provisions of the Treaty.

Practical aspects for the introduction of the Euro: For practical and logistical reasons, the current euro-area countries introduced a transitional period of three years (a single year in the case of Greece) between the adoption of the euro as the currency (1999 for eleven countries and 2001 for Greece) and the introduction of the euro cash (so-called "Madrid" scenario). The main alternative is the so-called "big bang" scenario in which entry into the euro area coincides with the introduction of euro banknotes and coins.

The introduction of the euro banknotes and coins is followed by a period of dual circulation during which banknotes and coins denominated in national currency are being withdrawn but still have legal tender status.

Euro banknotes: The *Eurosystem*, which consist of the *European Central Bank* (ECB) and the *national central banks* of the 12 countries belonging to the euro area, has the exclusive right to issue euro banknotes. All decisions on the designs, the denominations, etc. of the euro banknotes are taken by the ECB.

Euro Coins: The 12 euro-area *Member States* issue euro coins, while each country produces coins with its own national side. Production is generally entrusted to the national mints. The total value of euro coins being issued by each country is approved each year by the ECB.

Bringing euro banknotes and euro coins into circulation: Both the euro banknotes and the euro coins are brought into circulation by the different *national central banks*, largely through the different commercial banks which act as intermediaries for enterprises and the general public as well as through the cash-in-transit sector.

The conduct of monetary policy: The *Eurosystem* is in charge of defining and implementing the monetary policy of the euro area. Its primary objective in this respect is to maintain price stability in the euro area. It furthermore conducts foreign-exchange operations (consistent with the exchange-rate policy defined by the Council), holds and manages the official foreign reserves of the euro-area Member States and promotes the smooth operation of payment systems.

Bilateral exchange rate agreements: Several countries and territories operate exchange rate regimes according to agreements with the Community or one of its members, namely:

i. **CFP franc area** (Change Franc Pacifique), which covers France's overseas territories in the Pacific (French Polynesia, New Caledonia and Wallis and Futuna Islands), was previously linked to the French franc via a fixed parity. This link was not affected by the withdrawal of the French franc, and now consists of a peg to the euro and

ii. **CFA franc area** is composed of two monetary unions: the WAEMU (West African Economic and Monetary Union), consisting of Benin, Burkina Faso, Guinea-Bissau. Ivory Coast, Mali, Niger, Senegal and Togo, and the CAEMC (Central African Economic and Monetary Community), consisting of Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, (Financial Co-operation in Central Africa).

Both the CFA franc area and the *Comoros islands* previously enjoyed currency agreements with the French franc, whilst *Cape Verde* had an agreement with Portugal.

The EU agreed that France and Portugal could maintain these agreements in the form of a peg with the euro, but that the signatories would continue to retain sole responsibility for their implementation.

Reaping the full benefits of the EU's single market: A single currency is a natural complement to the European Union's single market, allowing it to function more efficiently and making it more conducive to growth, through:

Elimination of exchange rate fluctuations: this provides a more stable environment for trade within the euro area by reducing risks and uncertainties for both importers and exporters, who previously had to factor currency movements into their costs. Independent research suggests that the euro has already fostered significant growth in trade within the euro area as well in other currency areas too.

Businesses are better able to plan their investment decisions because of reduced uncertainties. *Elimination of the various transaction costs* related to the exchange and/or the management of different currencies due to elimination of exchange rate fluctuations. For example, the costs resulting from: *foreign exchange operations* themselves, i.e. buying and selling foreign currencies;

heaging operations intended to protect companies from adverse exchange rate movements; *cross-border payments* in foreign currencies, which are typically more expensive and slower than domestic operations; *management of several currency accounts*, which complicates currency management and internal accounting systems.

Price transparency: Consumers and businesses can compare prices of goods and services more easily when always expressed in the same currency;

Enhanced competition: easier price comparisons foster competition and hence lead to lower prices in the short to medium run. Consumers, wholesalers and traders can buy from the cheapest source, thus putting pressure on companies trying to charge a higher price. Companies can no longer charge the highest price each national market will bear.

More opportunities for consumers: the single currency makes it simpler for consumers to travel and to buy goods and services abroad, particularly when coupled with the progress of e-commerce;

More attractive opportunities for foreign investors: a large single market with a single currency means investors can do business through out the euro area with minimal disruption and can also take advantage of a more stable economic environment.

Single financial market: Benefits for Savers and Borrowers

A single currency zone opens up huge opportunities for both capital suppliers (savers and investors), and capital users (private or corporate borrowers and issuers of equity capital): The euro helps provide a *single market for financial operators* (i.e. banks, insurers, investment funds, pension funds, etc.). At the same time, small and fragmented national capital markets evolve into a larger, deeper and more liquid financial market. This is beneficial to both savers and borrowers. Savers benefit from a wider and more diversified offer of investment and saving opportunities. Investors can spread their risks more easily, and have an appetite for riskier ventures. Private and corporate borrowers as well as equity issuers benefit from better funding opportunities because money is easier to raise on capital markets.

Macroeconomic framework: Benefits of a single currency to the economy as a whole. Economic and Monetary Union (EMU) is based on the establishment of

a sound and healthy macroeconomic framework (stable conditions for the economy as a whole), which is notably characterized by:

Price stability: This is the primary objective pursued by the European System of Central Banks (ESCB), which operates in full independence.

Sound public finances: The Treaty sets out a number of requirements in order to avoid that Member States run excessive levels of government deficits or excessive levels of government debt relative to GDP. The Stability and Growth Pact moreover prescribes that Member States should have budget balances close to balance or in surplus over the medium term.

Low interest rates: The level of interest rates benefits from low inflation expectations, improved control of government debt (which allows for improved borrowing possibilities for private companies) and the increased size of euro securities markets, which improves liquidity. In addition, the elimination of exchange rate fluctuations has a positive impact on intra-European trade and a further downward impact on the level of interest rates.

Incentives for growth, investment and employment: Price stability, sound public finances and low interest rates constitute ideal conditions to foster economic growth, investment and employment creation within the euro area.

Shelter from external shocks: Because of the important size of the euro area economy and the fact that the majority of its trade takes place inside this area (between 50 and 75% depending on the country concerned), the euro area is far better equipped than the previous national currencies to withstand external economic shocks or fluctuations in the external exchange rate vis-à-vis the US dollar and other major currencies. The Euro is also becoming a major transaction currency, enabling a significant proportion of European exports and imports to be invoiced in euros.

Accession of ten new Member States to EU: Ten new Member States joined the EU on 1 May 2004 (Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia). The eventual adoption of a single currency forms part of the requirements laid down in the Treaty. These countries will therefore introduce the euro as soon as they have fulfilled the necessary conditions (and notably the Maastricht convergence criteria) as established in Article 122.2 of EC Treaty.

Institutions: There are many institutions. The Brussels Stock Exchange, the Copenhagen Stock Exchange, Finland Options Market, Marche a Terme International de France (MATIF), OMF Furures and Options Exchange, European Options Exchange of Netherlands, Norwegian Options Exchange, Stockholm Options Exchange, Swiss Options and Futures Exchange etc are notable entities.

Euromarket: In the Euromarket, straight Eurodollar bonds, FRNs (floating rate notes) and NIFs (note issuance facilities) have been popular funding options. The FRN market was growing very rapidly till the end of 1986 when the collapse of the perpetual FRN market halted further expansion. Eurodollar commercial paper and Eurodollar MTN markets are much smaller than their domestic counterparts but growing. Syndicated Eurodollar loans are available and have been frequently accessed by developing country borrowers.

Questions

1. Explain the meaning, significance and essence of finance management in domestic and multinational context.
2. Explain the nature of financial management in domestic and multinational context.
3. What is the significance of multinational finance management in the present context of integrated financial markets?
4. Present the importance of finance management for multinational business enterprises.
5. Explain the scope and relevance of the three operating functions of financial management.
6. Explain the goals of financial management in domestic and global context.
7. Financial management involves a good lot of balancing of conflicting goals. Substantiate.
8. Explain the concepts of risk, return, risk-return trade-off and the use of capital asset pricing models in the risk-return trade off.
9. Present briefly the environmental factors of MFM
10. Discuss the role of WB in shaping global developmental finance.
11. Explain the role of IMF and trade blocs in shaping global financial and liquidity scenario.

12. Probe into the role of IDA in influencing global finance for social infrastructure creation and development.
13. Deliberate on the role of IFC in shaping global private financial flows across borders.
14. Describe the role of MIGA in facilitating global financial flows.
15. Discuss the role of Central banks, Investment bankers and stock exchanges in shaping global financial scenario.
16. Discuss the scenario of emerging trends in financial instruments and financial markets in impacting multinational finance.
17. How do developments in Information technology and episodic developments impact global finance.
18. Examine the sub-systems of multinational financial system and their features and role.
19. Comment on the composition, contours and contributions of New York Financial Market in the global financial setting.
20. Comment on the composition, contours and contributions of New York Financial Market in the global financial setting.
21. Examine the structure, contours and contributions of London Financial Market in the global financial setting.
22. Discuss the composition, features and contributions of Tokyo Financial Market in the global financial setting.
23. Bring out the recent contributions of the European Union Financial Market to global financial scenario.

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UNIT–II

FDI BY MNCs: TYPES, OPPORTUNITIES AND RISK

Learning Objective are: To know
i. Concept and Nature of Foreign Direct Investment
ii. Emergence, Need, Benefits and Merits in FDI by MNCs
iii. Strategies of FDI by MNCs
iv. Opportunities and Trend in FDI
v. Political risks affecting FDI
vi. Operating policies of handling political risk
vii. Economic risks affecting FDI
viii. Methods of handling economic risk

Foreign investments mean investments beyond borders. Foreign investments refer to investments by entities of a nation in nations other than their own. Foreign investments mean export of capital. Export of goods is known to us. Similarly, export of capital is involved. Peter Drucker says to maintain substantial market standing on an important area a business concern requires physical presence as a producer in that area too. Such presence invariably leads to investment in overseas areas. Foreign investment can be direct or portfolio. Portfolio investment is investment in floating stocks, bonds or mutual fund units of existing companies. Direct investment is investment in business which involves substantial ownership and control, entrepreneurial risks, technology and management transfer and hosts of implications for the host country and the firm concerned. We are concerned with direct investment only here.

1. CONCEPT, TYPES, OF FOREIGN DIRECT INVESTMENT

FDI refers to investment in a foreign country where the investor retains control over the investment. It typically takes the form of starting a subsidiary, acquiring a stake in an existing firm or starting a joint venture in the foreign country. Direct investment and management of the firms concerned normally go together. If the investor has only a sort of property interest in investing the capital in buying equities, bonds, or other securities abroad, it is referred to as

portfolio investment. That is, in the case of portfolio investments, the investor uses capital in order to get a return on it, but has not much control over the use of the capital.

1.1. Concept and Definition

In general, foreign direct investment may be defined as "capital contribution made directly in industries and other development activities of a country by the foreign investors like multilateral institutions, entrepreneurs, banks, corporate undertakings including transnational corporations, governments and others". Such direct foreign investment can be brought in various ways like acquiring foreign firms by purchasing substantial chunk of stocks and debentures, opening subsidiary companies / offices / branches by multinational corporations and collaborating financially or technically or both with the domestic firms (popularly known as foreign collaborations). Direct investment generally involves management control, commissioning of production, conversion operation, employment generation, income creation etc.

Considerations by the investor: FDIs are governed by long-term considerations because these investments cannot be easily liquidated. Hence, factors like long-term political stability, government policy, industrial and economic prospects, etc., influence the FDI decision. Direct investors have direct responsibility in the promotion and management of the enterprise.

Considerations for host economy or co-owner: The external finance not only helps in bridging the domestic savings investment gap, but also enhances the efficiency of capital by way of strict scrutiny of investment proposals and adherence to time, monetary, physical and functional targets. FDI provides the benefit of upgraded technology, marketing and management inputs, apart from the additional capital injection and increased employment and incomes.

1.2. Nature of Foreign Direct Investment

The nature of FDI is presented below:

i. Long term: Foreign direct investment is long term in nature and that capital inflow on account of this is to stay in the host country for a long term.

ii. Entrepreneurial: Foreign direct investment adds to the entrepreneurial stock in the country. So, additional investment in physical facilities committed to industrial activities.

iii. Capital Formation: Foreign direct investment helps capital formation. When the critical capital component flows in, domestic savings can be actively converted into investment.

iv. Technology Inputs: Foreign direct investment spurs up the flow of improved technology from outside other through technology transfer or purchase. Technology driven advantages flow thereby.

v. Heats up Competition: Foreign direct investment increases competition as more players operate in the market space. Competition brings the best in people and works up for the delight of the consumers.

vi. Productive: Foreign direct investment is productive in nature as fresh capacity additions or processes or facilities are made. Contribution to gross domestic product is thus made.

vii. Efficiency Energizer: Foreign direct investment plays a great role in driving the efficiency of factors of production through the route of competition. And this leads to a reduction in incremental-capital-output ratio, which is a sign of real development.

viii. Catalytic Effect: Foreign direct investment catalyses fresh investment in down-stream and upstream activities. Thus a cross-section of economic activities is given a forward push.

ix. Employment Generation: Foreign direct investment creates employment opportunity. Quality of work-life also might improve with increased competition in the manpower market.

x. Impacts Standard of Living: Foreign Direct Investment impacts the standard of living of people as it changes means of production, quantum of production and so on.

2. EMERGENCE OF FOREIGN DIRECT INVESTMENTS

The reasons for emergence of foreign direct investments are seen from the perspective of certain economic theories on foreign investments.

i. **'Monopolistic Advantage' theory:** In 1960, Stephen propounded a theory known as 'Monopolistic Advantage' theory to explain the growth of foreign investments. Foreign investments take place in oligopolistic industries rather than in industries operating under conditions of perfect or pure competition. An oligopoly might have some inherent edges over

others in the market and drive a firm to cater to foreign market places as a producer. Oligopolistic market structure is an imperfect competitive structure.

ii. **Imperfect competitive conditions**: The imperfect competitive conditions theory propounded by *Kindleberger and Hymer* tells that these impact conditions spur foreign investments.

iii. **Internationalization theory**: There is another internationalization theory to explain foreign investments. This theory is an extension of the Market Imperfections theory. Internationalization theory of foreign investment says that, foreign investments happen as a firm wants to internationalize superior knowledge that it has. It is simply leveraging competitive advantages one has over a vast area of globe.

iv. **Appropriability theory:** Appropriability theory of foreign investments says that when a firm can appropriate for itself the full benefits of superior technology it has, the firm will globalize its presence across the nations of the world.

v. **Location – Specific Advantage theory**: Location – Specific Advantage theory of foreign investments explains spread of foreign investments from the advantages of such foreign investments in specific locations. The advantages are labour economics, market potentials and favourable government policy.

vi. **International Product – Life – Cycle theory:** International Product – Life – Cycle theory is propounded by *Raymond Vernon and Lewis T. Wells.* The theory tells that as a product becomes standardized one and as the market becomes competition-intensive. the production of the product must be globalize.

vii. **Electric Theory:** Electric Theory of foreign investments. propounded by *John Dunning,* tells that, from specific advantages, internationalization advantages and location-specific advantages, the spread of investments across globe arises.

viii. **Retaliatory Strategic theory:** Retaliatory Strategic theory of foreign investment tells that as one country's firms invest in a foreign country. firms in that country retaliate by investing in firms of the first country. Thus cross-holdings take lace.

ix. **Investment – Trade link theory:** Investment – Trade link theory, tells that foreign investment follows foreign trade.

2.1. Need for Foreign Investment for the investing entities like the MNCs:

From the MNCs point of view there are several reasons for FDI by them. These are presented below.

i. Cost Reduction: Cost reduction is the best course for market supremacy and MNCs vie with each other to gain that nectar. If competitors gain access to lower-cost sources of production abroad, following them overseas is a prerequisite for domestic survival. One strategy that is often followed by firms for which cost is the key consideration is to develop a Foreign-spanning capability to seek out lower-cost production sites or production technologies worldwide. In fact, firms in competitive industries have to continually seize new cost reduction opportunities across the globe, especially venturing into third world delights.

ii. Economies of Scale: Large scale operation reduces unit fixed cost and investment. This is a factor motivating foreign direct investment. In a competitive market, prices will be forced close to marginal costs of production, leaving a thin spread to cover fixed costs. Hence, firms in industries characterized by high fixed costs relative to variable costs must engage in volume selling just to break even. These large volumes may be forthcoming only if the firms expand overseas.

Companies manufacturing products such as computers or developing software or pharmaceutical products that require huge R&D expenditures often need a larger customer base than that provided by the domestic even a market as large as the United States or the western Euro or the combined India-China population in order to recapture their investment in knowledge. Similarly, firms in capital-intensive industries with enormous production economies of scale may also be forced to sell overseas in order to spread their fixed overhead over a larger quantity of sales. L.M.Ericsson, Swedish manufacturer of tele-communications equipment, is forced to think internationally when designing new products because its domestic market is too small to absorb the enormous R&D expenditures involved and to reap the full benefit of production scale economies. This is so for many of European firms, because domestic market is

limited. These firms may find a foreign market presence necessary in order to continue selling overseas. Local production can expand sales by providing customers with tangible evidence of the company's commitment to service the market. It also increases sales by improving a company's ability to service its local customers.

Dr.Reddy's Lab of India started off its Europe acquisition journey in 2002 buying UK's BMS Lab. In 2006 it acquired Germany's betapharm Arzneimittel Gmbh. These acquisitions have given the Reddy's the status of a mid-sized global pharma company with scale and knowledge synergies.

iii. Multiple Sourcing: Fear economic and political risks usually lead firms to follow a policy of multiple sourcing. So many firms opt for several small plants in different countries instead of one large plant that can take advantage of scale economies but that would be vulnerable to disruptions. The costs of multiple sourcing are obvious, but the benefits are less apparent. One benefit is the potential leverage that can be exerted against unions and governments threatening to shift production elsewhere. Another, more obvious, benefit is the additional safety achieved by having several plants capable of supplying the same product. Multiple sourcing of supplies reduces the risk of being overly dependent on one or two producers. Benefit of diversified sourcing is also manifested in competitive pricing.

For example, to feed its cracking facilities in Netherlands, and Spain, Dow Europe buys naphtha from a refinery in Netherlands, but it also buys on the Rotterdam spot market and under long-term contracts from Saudi Arabia and other supplier countries, including the Soviet Union.

iv. Multiple facilities: Multiple facilities located at different countries instead of single facility in one or few countries give the firm the option of switching production from one location to another to take advantage of transient unit cost differences arising from, say, real exchange rate changes or new labor contracts. This option is enhanced, by building excess capacity into the plants.

v. Knowledge Seeking: Some firms enter foreign markets for the purpose of gaining information and experience that is expected to prove useful elsewhere. For instance, the English firm Beecham deliberately set out to learn from its U.S. operations how to be more competitive, first in consumer products and, later, in pharmaceuticals. This knowledge proved to be highly valuable in France and Germany. MNCs like P&G, Suzuki, etc. entered in India via joint ventures. In

1983, three South Korean concerns - the Samsung Group, the Hyundai Group, and the Lucky-Gold Star Group - set up operations in Silicon Valley. The Korean companies are trying to bring their technology up to U.S. levels by working in proximity to the top electronics producers in Silicon Valley, and with access to some of the best technicians. They also hope to gain respectability in the foreign electronics trade by establishing a presence in the region. The flow of ideas is not one way, however. As Americans have demanded better-built, better-handling, and more fuel-efficient small cars, Ford of Europe has become an important source of design and engineering ideas and management talent for its U.S. parent.

The acquisition of Tetley of UK by Tata Tea in 2000 is to muster crucial presence in the UK market as a gateway for further acquisitions in Europe. Similarly Tata's stake purchase in Energy Brands Inc. of the US is to gateway newer acquisitions in the US market.

vi. Tracking Overseas Development: In industries characterized by rapid product innovation and technical breakthroughs by foreign competitors, it is imperative to track overseas developments constantly. Most firms have found that a local market presence aids in this process of gathering information. An overseas subsidiary have a close look at advances in manufacturing technology and product development, enabling it to quickly pick up and transfer back to the parent new information on innovations in the areas of computer design and manufacturing. Data General has already adopted some Japanese manufacturing techniques and quality-control procedures that will improve its competitive position worldwide, through inputs received from subsidiaries working in Japan. Similarly World wide demand for Indian software engineers made MNCs to hire management graduates and software professionals from India on a large scale. More firms are building labs in Japan and hiring its scientists and engineers to absorb Japan's latest technologies. For example, Texas instruments works out production of new chips in Japan first because, "production technology is more advanced and Japanese workers think more about quality control". A firm that remains at home can be "blind sided" by current or future competitors with new products, manufacturing processes, or marketing procedures.

vii. Learning through competition: For many industries, a competitive home marketplace has proved to be as much of a comparative advantage as cheap raw materials or technical talent. Fierce domestic competition is one reason the U.S.

telecommunications industry has not lost its huge lead in technology, R&D, design, software, quality, and cost. Japanese, Indian and European firms are at a disadvantage in this business because they don't have enough competition in their home markets. U.S. companies have been able to engineer a great leap forward because they saw firsthand what the competition could do. To compete effectively firms must first compete in the toughest market of all. What they learn in the process - from meeting the extraordinary demanding standards of consumers and battling a dozen relentless rivals is invaluable.

viii. Synergizing: Buy going for mergers, alliances, and collaboration with overseas players diverse synergies are tapped. A dynamic improvement, which derives from continuous effort to enhance existing skills and learn new ones, is thus built on a vast spectrum of operations. The acquisition of Corus of Europe by the Tata Steel of India amidst stiff competitive bidding in January 2007 is to synergize and scale op global presence by Tata Steel.

ix. Keeping Domestic Customers Delighted: Suppliers of goods or services to multinationals will often follow their customers abroad in order to guarantee them a continuing product flow. Otherwise, the threat of a potential disruption to an overseas supply line - for example, a dock strike or the imposition of trade barriers - can lead the customer to select a local supplier, which may be a domestic competitor with international operations. Hence, comes the dilemma: Follow your customers abroad or face the loss of not only their foreign but also their domestic business. A simiiar threat to domestic market share has led many banks, advertising agencies, and accounting, law, and consulting firms to set up foreign practices in the wake of their multinational clients' overseas expansion.

x. Globalize Portfolio: Overseas investment means a diversified portfolio which reduces risk given the return. By now it should be apparent that a foreign investment may be motivated by considerations other than profit maximization and that its benefits may accrue to an affiliate far removed from the scene. Moreover, these benefits may take the form of a reduction in risk or an increase in cash flow, either directly or indirectly. Direct cash flows would include those based on a gain in revenues or a cost savings. Indirect flows include those resulting from a competitor's setback or the firm's increased leverage to extract concessions from various governments or unions (for example, by having the flexibility to shift product to another location). In computing these indirect

effects, a firm must consider, of course, what would have been the company's worldwide cash flows in the absence of the investment.

Ranbaxy Lab of India acquired in 2006 Terapia of Romania to gate way it's further arms-spread in Europe. Ballarpur Industries Ltd (BILT) acquired Sabah Forest Industries of Malaysia to become one in top 10 in paper companies in Asia, excluding Japan. These are to effect a global portfolio in the era of globalization.

2.2. Need for Foreign Investments from Recipient Country's View Point

The factors that necessitate foreign direct investments from the point of view the recipient countries are as follows.

i. Need for Foreign Capital: Finance is the important requirement of industrial and economic development of any country. The sources of finance are both internal and external finance. The external capital inflows are of different forms, viz., remittances from citizens abroad, Foreign Direct Investment (FDI), Euro-issues, Portfolio Investment, etc as was already seen. However, the most preferred form of funds for the industry is FDI and portfolio investment. The reason is equity is better than debt as in these days servicing debt is problematic while equity is not so because dividend is paid while profits are earned. Equity route also brings in the entrepreneurial component. Debt servicing of external loan is already wielding an enormous burden on our economy. So equity fund, that too in the form of FDI is needed. The new economic policy is towards Globalization and improving the productivity and quality of industrial products to compete in the international market. The need for FDI has arisen to achieve the following objectives; to reduce interest burden on external debt to avoid external debt problem , to increase export earnings to correct the adverse balance of payments position; to achieve international competitiveness and accelerating modernization and technology upgradation. Foreign investment has particularly, been solicited in critical infrastructure areas like power, road and the hydro - carbon sectors where capacities are inadequate and need for investment is large. FDI has also been permitted in trading companies, which are primarily engaged in export activities, hotel and tourism related industry.

ii. Need for Foreign Technology: Technology is the invisible hand with visible impact on development. Foreign technology plays an important role in India's

industrialization. Just like foreign capital fills up investment - savings gap, foreign technology fill up the technological gap of us. It is said, the technological gap of developing countries in comparison with the Western countries is about a decade and half. Recognizing the crucial role of advanced technology in promoting industrial growth and economic development, import of foreign technology is liberalized now, both for new industries as well as for updating the existing technology in the country. One must be able to absorb the technology so imported and in many cases to adapt and modify it to suit the level needs and requirements FDIs, not only bring capital but also technology most needed.

iii. Need for Foreign Entrepreneurship: Entrepreneurship, like technology is most needed for development. Actually it is most fundamental of all factors of development. Entrepreneurship in developing countries is not of the risk taking type. There are entrepreneurial gapes as well. The private sector declines to enter into long gestation projects. The public sector is not efficient and of late capital investment by public sector is dwindling due to budgetary constraints. Foreign entrepreneurs and MNCs, either in partnership with domestic entrepreneurs or in their own individual merit can fill up gaps in entrepreneurial thrusts of the country. The expanding industries and other sectors of the economy themselves provide a market for capital goods for intermediate goods and support various industries. Supply of new entrepreneurs is thus needed. And the supply - demand gap is sought to be filled up through invitation to foreign entrepreneurs.

iv. Injecting Competition: Entrepreneurs in third would countries continue to produce over a longer period without making adequate efforts and focus on innovation, modernization and quality improvement. Actually they are a protected lot, enjoying good profits by having monopoly market due to high import tariff. Now they are required to assume risk, face competition, first for growth and maintaining market share. It is necessary to infuse fresh blood of entrepreneurship in these countries. Foreign competition with a measure of level playing field is the route to achieve the thrust on entrepreneurship development.

v. Need for Collaboration: The private sector is playing increasingly a sportive role in lining up join hands with the foreign entrepreneurs. Foreign entrepreneurs are interested in investing in emerging markets as they see adequate lures in operating in these countries which have most potential and fast growing markets for consumer goods as well as for industrial products. Even the shortfall in

infrastructure is an opportunity for foreign investors as they are encouraged to take up infrastructural projects

2.3. Merits of Foreign Direct Investment

The merits of FDI are:

- Creation of new employment and job opportunities.
- Improvement of quality of product, service and facilities
- Transfer of appropriate technology, reduction of technological obsolescence and technology gap
- Introduction of variety in financial instruments to woo every kind investors with some savings to part their liquidity in favour of future gains
- Increase in the size and depth of domestic capital market flows adding strength to the financial system
- Continued interest of the foreign investor in the financial, technical, commercial and marketing viability of the project leads to project success
- Achievement of broad based infrastructural development as most of the FDI is going into this segment of late
- Creation of export competitiveness as the FDI destination countries put thrust on rising their export capability
- Flow of foreign exchange and building up of foreign exchange reserves as a consequence of the above, on a long time basis
- Development of industrial base with attendant growth impetus to the economy as a whole
- Integration with the foreign economy with consequent benefits
- Emergence of multinationals with domestic parentage
- Higher foreign capital flows add to liquidity in the financial market and that stock market become bullish, thus paying way capital issues at premia.
- FDI invariably, brings the entrepreneurship skills as well
- Strategic business alliances also result to the advantage of all concerned-domestic and foreign business houses.

The above list of advocacies for FDI is not exhaustive. In this lies the need for FDI.

2.4. Steps taken by Host Countries to Attract more FDI

As benefits abound with foreign direct investment, host countries provide lot of incentives to attract more foreign direct investment. These are:

Reduction in the rate of corporate taxes so that after tax return that the foreign investors can get is more than what they can get in their own land.

Fast track clearance for projects with upto 51% equity ownership through the Central Bank approval route is allowed. Convertibility on current account is made so that exports pick up and foreign entrepreneurs contribute to Exports.

More sectors of the economy, including certain sacred cows like the defense production, aviation, etc are opened for FDI. 100% foreign equity is being increasingly allowed in many sectors.

Import tariff rates are reduced so that the domestic consumers have a choice and also the market becomes more competitive making domestic products export worthy in the Foreign market.

Transparent takeovers and mergers for strategic reasons, strategic alliances for mutual benefits etc are allowed.

The financial sector is opened and liberated from Central Bank control on certain aspects. Prudential norms are adopted. This makes the sector efficient.

Integration and modernization of the functioning of stock market are made. Transparency is ensured. On line trading and other improvements are made.

3. STRATEGIES OF FDI FOLLOWED BY MNC

Foreign Direct Investment can take any of these forms: i. Joint ventures, ii. Mergers and Acquisitions and iii. Wholly owned fresh subsidiary.

3.1. Joint Ventures (JVs)

Joint ventures involve the foreign and domestic entrepreneurs jointly floating a unit. There are four types of JVs.

i. **Joint ventures by adoption,** i.e., acquisition of part of the equity in a small entrepreneurial company.

ii. **Joint ventures by rebirth** which occur when the foreign partner transfers technology to an ailing domestic business and takes equity stake in the revived business;

iii. **Joint ventures by procreation** in which a true new venture is born out of a marriage between the technical and/or market-know-how of the partners;

iv. **Joint ventures through family ties** which occur when suppliers join together with each other or when a manufacturer takes an equity position in a supplier business.

Joint ventures are good as these involve strengths of the partners mingled and magnified and synergies emanate. Joint ventures lead to synergies driven through core-competencies. There are technical, financial, production, marketing and managerial synergies to drive from joint ventures. Benefits of JVs are: Local capital, Local Management, Assured supply of Raw material, Trained labour, Marketing capabilities, Established distribution and logistics network, Proven technology, Easier Government approval, Local currency loans, Tax incentives and the like.

3.2. Mergers & Acquisitions (M&A)

Mergers & Acquisitions (M&A) involve strategic acquisition by a Foreign investor in a domestic firm, such that ownership/controlling power changes hands. The objective of M&A are:

- Gaining instant access to markets and distribution network,
- Obtaining access to new technology,
- Diversification- Related or unrelated
- Integration - backward and forward, and
- Getting monopolistic position by acquiring control over competitors' positions.

The last decade 1997-2006 has seen lot many mergers and acquisitions world over. M&As have been driving FDI growth more than ever. In 1998, the absolute value of all M&As amounted to $ 544 billion, indicating an increase of 60 per cent over that in 1997. By 2006 annual M&A figure crossed over $2 trillion.

It has been pointed out that although for many Asian companies diversification has been a strong motivation, a number of other factors have been responsible for the M&A surge. They include consideration of technical, strategic and financial advantage. Political reasons, and the fear of growing protectionism had, of course, acted as the prime force early in Asian M and A.

3.3. 100% Subsidiary or Wholly-owned Subsidiary

100% subsidiary or wholly-owned subsidiary involves floating a subsidiary and starting business from scratch. This involves fresh investment, unlike M&A when change of hands of ownership is only effected.

4. OPPORTUNITY AND TREND IN FOREIGN INVESTMENTS

The opportunities for FDI are on the rise ever going by the trend in FDI world over. Dare it, you got it, is the way the FDI scenario is unfolding. The opportunity for and trend in FDI are dealt now.

4.1. Opportunity for FDI

The opportunity for foreign investments is directly emanating from economic reformist policies adopted by most of the less developed countries of the world and open economic policies pursued by developed nations. Liberalization, Privatization and Globalization (LPG) are vigorously pursued by the countries giving an up-thrust on investment opportunities.

Liberalization:

Liberalization is a reformist process. The essence of economic reforms process is liberalization, i.e., liberalization from government control of the factor market and output market. Demand and supply interact to settle price. Accordingly adjustments take place. Those who could not supply at the market determined price (cost being higher) either one should tone up operations to reduce cost so as to able to supply the market or find their way out. Liberalization thus leads to efficiency. Efficiency becomes the driving force of industry, trade, institutions and firms. Capital efficiency, labour efficiency and managerial efficiency lead to operative efficiency resulting cost efficiency. Cost efficiency helps reaping market efficiency leading to profit efficiency. With profit efficiency developmental efficiency takes lace, for with profit modernization, expansion and diversification are possible leading to development. Thus, the ultimate goal of liberation policy is development.

Privatization:

Privatization essentially means increasing the role for private initiative. State initiative resulted in growth of public sector. But with time public sector has become a white elephant. The reasons are not far to seek. First, the objectives of public sector are a mixture of conflicting orientations. So objective performance measurement is not possible. So, performance is casualty. Increasingly, political dead weights are made reigning heads of public sector units and under such leadership these units further drifted. Public sector management cadre under the guise of political intervention did not act professionally. Public sector employees lack work culture, taking of course, cues from management. In sum, public sector meant a drain on budgetary resources of Government. For fear of political onslaught Government after Government, simply allow public sector to continue as such. There is no point in blaming the founding fathers of public sector for the present lacunae of public sector which grossly reflect current political, managerial and work cultures. But at the same time, due to external and internal public opinion, public sector's role needs to be modified. Again that can not be done openly for fear of political consequences, so privatization as a back door approach to tune public sector, is pursued. Part ownership by private sector of existing public sector units is done, popularly known as voucher privatization. Private sector participation in infrastructure development is very much encouraged. Industries reserved for state sector are opened for private sector. Besides , disinvestment of government stake in PSUs is much vigorously pursued of late. Step by step competition is being introduced between public and private sector. With competition efficiency and development are achieved.

Globalization:

First India Prime Minister Jawaharlal Nehru observed that, "History today has ceased to be the history of this country or that. It has become the history of mankind - because we are all tied up together in a common fate". When applies to history is applicable to economy as well. Today's economy has in fact ceased to be economy of this or that nation, but has become global economy. Economic activities have to be conceived, designed and executed with a global perspective. There is that much of integration. Failure to recognize the impending integration only leads to declining standard of achievement and hence living. Globalization takes place through flow of capital, technology and goods across nations. Now,

LDC's have opened their economies to foreign capital - both direct and portfolio. Foreign technology flow is also increasingly happening through technical collaborations. Flow of goods is taken care of by open trade policy. Companies are becoming cross-border or borderless. That is through foreign subsidiaries and joint-ventures, companies have operations spread over several nation states. Precisely globalization is effected through MNCs.

Open Economic Policies of Developed countries:

Open Economic Policies of Developed countries allow cross border investments. Indian companies have started acquiring overseas businesses, some big ones too, of late. This is possible because there is no political pressure or coming in the way. There could be competitive pressure leading to pay a higher acquisition price. But that is part of the game. In 2006 only the inbound and outbound M&A deals with respect to India totaled a staggering $30 bn.

4.2. Trend in FDI

Although foreign direct investment flows had their ups and downs, the stock of FDI has increased tremendously over time. The worldwide stock of FDI tripled from $500 billion in 1980 to $1,500 billion in 1990. At the beginning of 1999, the FDI stock amounted to more than $4 trillion, over 70 percent of it being in the developed countries.

The growth of FDI has been much faster than those of domestic output, domestic investment and international trade. The average annual value of FDI increased from $6.6 billion during 1965-69 to $25.6 billion during 1975-79. After a steady upward trend in the 1970s, FDI dropped off between 1981 and 1986. However, it recovered later. In 1990, FDI recorded a level of $232 billion. During 1992-95 it averaged about $227 billion. The total FDI crossed the trillion mark total $1.271 trillion in 2000.

Table 2.1 Growth of FDI ($ Billion)

	World	Developed Countries	Developing Countries	Share of Developing Countries
1985-91 (Annual Average)	159	130	29	18

1998	680	481	179	37
1999	1075	830	222	21
2000	1291	1005	240	19

Source: United Nations, World Investment Report 1998 and 2000

The economic liberalization in many countries, including the erstwhile communist countries and countries which still claim to be communist or socialist like the Peoples Republic of China, should be expected to enlarge the FDI flows in future.

The major junk of the FDI flows take place within the developed countries. For nearly three decades till the early 1990s, about three-quarter of FDI had gone to the developed countries. Nearly two thirds of the flows take place between the Countries of the Triad – United States, the European Community and Japan. In 1998, the United State attracted the largest amount ($193 billion) of FDI followed by Chin ($45 billion). In 1998 FDI outflows from the U.S. amounted to $133 billion.

The share of FDI going to the developing countries declined substantially from 25 percent during 1980-85 to 1 per cent during 1986-90. There was, however, an increase in the absolute amount of FDI flows to the developing countries. The economic liberalizations in the developing countries have helped increase their share of the FDI recently. In 1998, developed countries attracted about 37 per cent of the total FDI. In 1999, however, the FDI in the developed countries decreased and their share in the total declined to 21 per cent. In 2000 the developing countries rose to 19%.

Global FDI flows grew in 2006 for the third consecutive year to reach US$1.2 trillion, according to UNCTAD's first estimate for the year. This represents a 34 percent increase from 2005, although still short of the record of US$1.4 trillion set in 2000. FDI flows to developed countries in 2006 rose by 48%, well over the levels of the previous two years, and reached US$800 billion. FDI flows to developing countries and economies in transition (comprising South-East Europe and the Commonwealth of Independent States) rose by 10 percent and 56 percent, respectively, in 2006, reaching record levels for both groups of economies.

The continued rise in FDI largely reflects high economic growth and strong economic performance in many parts of the world. Such growth has occurred in both developed and developing countries. Increased corporate profits (and resulting higher stock prices) have boosted the value of the cross-border mergers and acquisitions (M&As) that constitute a large share of FDI flows. Continued liberalization of investment policies and trade regimes added further stimulus, although in some countries in Africa and Latin America there were some notable changes in economic policy towards a greater role for the state, as well as changes in policies that directly concern foreign investors or industries, in particular the natural resources industry.

FDI performance has varied greatly among regions and countries. FDI flows to developed countries in 2006 rose by 48%, well over the levels of the previous two years, and reached US$800 billion. The United States recovered its position as the largest single host country for FDI in the world, overtaking the United Kingdom, the top FDI recipient in 2005. The European Union (EU) as a whole continued to be the largest host region, accounting for 45% of total FDI inflows in 2006.

However, several risks for the world economy -- most of them not new -- may have implications for FDI to and from developed countries. Global current-account imbalances have widened dramatically and could cause abrupt exchange-rate shifts. High and volatile oil prices have caused inflationary pressures, and a possible tightening of financial market conditions cannot be excluded. High fiscal deficits in Europe, in combination with rising interest rates, could lead to tax and wage pressures. All these considerations underline the need for caution in assessing future FDI prospects for developed countries.

FDI inflows to developing countries and economies in transition (the latter comprising South-East Europe and the Commonwealth of Independent States (CIS)) rose by 10% and 56% (table), respectively, in 2006, and reached record levels for both groups of economies.

In Africa, FDI inflows in 2006 exceeded their previous record level of 2005. High prices and buoyant global demand for commodities were once again a key factor, particularly in the oil industry, which attracted investment not only from developed countries but also from some developing countries. Cross-border M&As in the extraction and related service industries of Africa tripled in the first half of 2006, as compared to the same period in 2005. However, the

regional FDI picture is not uniformly bright across sectors, countries and sub-regions. Most of the inflows are concentrated in the West, North and Central African sub-regions. Inflows will continue to be small in low-income economies lacking natural resources.

FDI inflows to Latin America and the Caribbean slowed in 2006. Mexico and Brazil, in that order, remained the largest recipient countries with inflows remaining virtually at the same level in Mexico and increasing by 6% in Brazil, in spite of a fall in cross-border M&As. FDI inflows to Chile increased by 48% due to a continued rise in reinvested earnings resulting from windfall benefits from mining. FDI inflows to Colombia and Argentina decreased by 52% and 30%, respectively, because of a decrease in cross-boarder M&As. In the Andean countries, growing demand for commodities and resulting higher prices propelled changes in policy in the direction of more control by the state. That resulted in less favorable fiscal regimes for investors in such countries as Bolivia, Ecuador, and Venezuela. The possibility of additional regulatory changes and of their extension to more countries may have raised uncertainty among investors in the primary sector, resulting in the decrease in FDI flows to the region. In addition, high commodity prices and resulting improvements in current-account balances have led to an appreciation of the value of many countries´ currencies. That could affect prospects for FDI in export-oriented manufacturing.

FDI inflows to South, East and South-East Asia, and Oceania maintained their upward trend in 2006, reaching a new high of US$187 billion, an increase of 13% over 2005. Investments in high-tech industries by transnational corporations (TNCs) are growing rapidly, particularly in China. Meanwhile, other countries, including India, are attracting increasing FDI for traditional manufacturing. At the subregional level, a shift continues in favour of South and South-East Asia. China, Hong Kong (China) and Singapore retained their positions as the three largest recipients of FDI in the region. India surpassed the Republic of Korea and became the fourth largest recipient. Outward FDI from the region surged with China consolidating its position as an important source of FDI. India is rapidly catching up, with 2006 FDI outflows almost doubling. China and India are challenging the dominance of Asia´s newly industrializing economies as the main sources of FDI in the developing world.

In West Asia, FDI flows, both inward and outward, maintained their upward trend in 2006. Turkey and oil-rich Gulf States continued to attract most FDI inflows, accounting for a record level in 2006 in spite of geopolitical uncertainty in parts of the region. Energy-related manufacturing and services were the most targeted industries. FDI outflows from the region increased, mainly from the Gulf countries led by the United Arab Emirates. Cross-border M&As, particularly by state-owned enterprises, continued to be the main mode of outward FDI,. Such outflows are increasingly taking place in energy-related activities, supported by the region´s tightening ties with China and India and other economies in Asia and Africa.

After a minuscule increase in 2005, FDI inflows to the 19 countries of South-East Europe and the CIS expanded significantly in 2006, the sixth year of uninterrupted growth of FDI in the region. Inflows to the region´s largest host country, the Russian Federation, almost doubled (table). FDI is likely to be particularly buoyant in countries slated to join the EU on 1 January 2007 (Bulgaria and Romania) and in the large economies such as the Russian Federation and Ukraine. FDI prospects for the Russian Federation are, however, affected by the impact of tightening Russian natural resource regulations and by disputes that emerged in 2006 over environmental protection and extraction costs (for example those involving two major oil development projects in Sakhalin). It is uncertain whether large increases in such sectors as chemicals and petrochemicals, services, and real estate (especially in large cities) -- categories where investor confidence is currently high -- could fully compensate for a possible slowdown of oil-related FDI.

One of the most significant developments in FDI over the past two or three years has involved natural resources and related industries. Despite some unfavourable developments for foreign investors in such industries, high demand for natural resources -- and, as a result, the opening up of new potentially profitable opportunities in the primary sector, such as gas and oil development in Algeria -- are likely to attract further FDI to the extractive industries. FDI in this sector will be examined in greater detail in UNCTAD´s World Investment Report 2007.

Economic growth in 2007 is projected to slow moderately. Continuing global external imbalances, sharp exchange rate fluctuations, rising interest rates, and increasing inflationary pressures, as well as high and volatile commodity

prices, pose risks that may also hinder global FDI flows and could lead to a slowdown in the fast growth in global FDI registered over the past few years.

5. POLITICAL RISKS AFFECTING FDI

Political risk generally emanates from i. Political systems, ii. Political volatility and iii. Relationship between the state and the MNCs.

5.1 Political System

Political system refers to the set of factors relating to political institutions, the political parties and their ideologies, the form of state governance and the role of the state and its functionaries vis-a-vis, the role of individuals and their organizations. Every country has a political system of its own.

There are different forms of political system. Capitalism, welfare capitalism, socialism, communism and mixed economy are the different systems. A brief summary of each of the forms is presented below.

Capitalism: Capitalism is a politico-economic system wherein, private ownership and initiative, individual freedom to produce, exchange, distribute and consume, market mechanism and consumer sovereignty and limited role of government are found. In short capitalism may be called as 'free enterprise economy' where state control on businesses is not existing or minimum.

The capitalist political system is pro-private businesses. Efficiency is rewarded in the market. Businesses flourish through efficiency, innovation and serving the consumers. Businesses are directed by market mechanism, least influenced by governmental factors. The western economics like the USA, Canada, etc. have capitalist political system. Since efficiency is rewarded, higher levels of performance is achieved. These economies generally do very well.

Welfare Capitalism: Capitalism has certain limitations such as neglect of certain business not yielding good profits or those involving greater risk. Individual 'good' may not aggregate to collective 'good'. So, some state role is needed. Herein the government intervenes and fills up the gaps to ensure maximum social advantage. Government supplements and does not substitute private entrepreneurship. The characters of capitalism are applicable to this system in total subject to the above referred to variation. Government relationship with the business takes the same pattern as in the case of capitalism,

except that government intervenes in a small way to ensure social welfare of people at large.

Socialism: Socialistic political system is characterized by state ownership of production, exchange and distribution. The main features of this system are: i) Government ownership and/or control of factors of production, ii) Government direction of production, exchange and distribution, iii) Central Planning of resource mobilization, allocation, pricing etc. iv) Restriction private businesses, v) restriction on individual freedom and initiative, vi) government interference in income distribution, vii) government direction on physical distribution and pricing of products, viii) consumer is not the king, only the state is all powerful and so on.

In a socialist political system businesses are run and/ or closely controlled by the state. Businesses are run by bureaucrats and not by people with business acumen. Businesses are distanced from profit goal. State policy determines which industry to be developed and which is not to be developed. Private initiative is not nurtured, sometimes is even curbed. Business is dominated by the government bodies.

Communism: A communist political system is nothing but 100% state control of all human activities. It is also known as state capitalism. Production, exchange, distribution and consumption are all state controlled. The difference between socialism and communism, is that in communism, consumption is also state controlled. Businesses are run almost like government departments. The dominant environment of business is, truly, the government factor.

Mixed Economy: India adopts the 'golden mean' of capitalism and socialism. Side by side public and private ownership exist. This system is known as mixed economy. The features of capitalism and socialism are jointly present in this system.

Private initiative, freedom of enterprise, consumer sovereignty. individual saving and investment, profit orientation and market mechanism are all there. But not entirely free of government control. State initiative, state enterprise, state investment, social objectives like equal distribution, balanced development of all regions, concessions and privileges for the less privileged, reservations for the benefit of weaker sections, etc are found.

5.2 Political Stability

Political stability in the host country is a crucial factor. The political system, the number of parties, ideologies of parties, animosities amongst different parties, leadership characters of political parties, the commitment of parties taking power to honour commitments made by previous governments, etc influence political stability. Lack of political stability is an indication of excessive risk involved.

5.3 Relationship between the State and the MNC

There could be political instability and yet it may not transform into political risk. This is so when the State respects the particular MNC or all MNCs concerned. Today MNCs have good relationship with the Govt. barring a few cases in most countries, due to LPG policy pursued widely. Multilateral Investment Guarantee Agency (MIGA), bilateral agreements to protect mutual investment interests, etc ensure that good relationship prevails between the State and the MNCs.

Country's political and strategic relationship with world powers is another factor. The world is becoming a uni-polar world. So, India - USA, for example, relationship has begum to warm up. The USA, sees India as an economic opportunity. So, political and strategic alliances are on the rise. This is a conducive climate for overseas investment. India is also in good relationship with Japan, the European Union and so on. So, business interests develop.

5.4. Political Risk

Political risk is a function of: i. Probability that a given political event will affect a particular MNC or its particular project and ii. The magnitude of the event's impact. An opposition demand to halt FDI, say, is the event that causes political risk. What is the probability that all opposition will jointly assemble and protest? What is the likely impact of this on FDI programmes? Answers to these questions answer the relevance of political risk. Political risk can be and have to quantified. Factors to be considered include: i. the host country's political and government system; ii. track record of political parties and their relative strength; iii. the degree of integration into the world system; iv. the host country's ethnic and religious stability; v. regional security; and vi. key economic indicators.

Even if all opposition show solidarity, the Govt. in power can contain their rebellion using constitutional and legal measures. It must have the power and willingness to do.

The relevance of political event to MNCs in general, to an MNC or to a particular project of an MNC is to be measured. The event may affect ownership rights, access to input/output markets and so on. The extent of impact might be varying between MNEs, between MNE projects and between regions. So, scenario of impact must be evolved and evaluated. Usually optimistic (less destabilizing), pessimistic and most-likely levels of impact be studied.

6. HANDLING POLITICAL RISK

The extreme form of political risk is expropriation. What will be the project worth if withdrawal is made right now fearing expropriation and when a wait and see policy is followed? You have to estimate the cash flows under two scenario (expropriation happens and does not happen) for the two alternatives (exit right now and wait a while). A hypothetical case is presented below. The cash flow right now obtainable by pulling out is S256 mn whether expropriation happens or not. If waited for a year the estimated cash flow when expropriation happens is $ 200mn and when expropriation does not happen it is $ 600. The fear of losing $56 mn due to expropriation and benefit of getting extra $ 344 mn when the feared expropriation does not happen puts the firm in a dilemma.

Alternative Courses	*Expropriation*	*No Expropriation*	*Expected Present Value*
Exit now (CF $)	256 mn	256 mn	$256mn
Wait a year (CF $)	200 mn	$600 mn	{$200p+600(1-p)} / 1.22 mn

CF : Cash Flow

To solve the issue, you need to estimate the probability of expropriation happening. Let it be 'p'. Then known our cost of capital, we can estimate the minimum value of 'p' for a pull-out right now. Let cost of capital or minimum required return be 22%. Then present value of cash flow under wait and see course becomes: [{$200p + 600(1-p)} / 1.22] mn. By setting the expected cash

flows under exit right now and wait a year courses equal, the minimum value of 'p' can be found.

Solve for 'p' in: \$256mn =[{\$200p + 600(1-p)} / 1.22] mn .

$$\$256mn \times 1.22 = \$200p + \$600 - \$600p$$

$$\$312.32mn = \$600mn - \$400p.\ mn$$

$$\$400p\ mn = \$\ 271.68\ mn \text{ or } p = 0.7$$

From the above, if the chance for expropriation is 70%, it is immaterial whether you pull out right now or later. If the probability is more than 70% pulling out right now is a better course. If it is less than 70% there is no need to exit right now. So, the problem now becomes the estimation of probability of the expropriation happening!

Political risk handling has to be addressed at i. Pre-investment planning phase, ii. Post-investment operating phase and iii. Post ex-propriation phase. These are dealt below.

6.1. Pre-Investment Planning Phase

To deal with political risk, at pre-investment level, the MNC concerned can think of: i. Avoidance, ii. Insurance, iii. Negotiate the environment, iv. Structure the investment and v. Patenting.

i. Avoidance: Avoidance involves not committing the resources in the project. This is easiest but not reflective of true characteristic of MNCs. However certain politically high risky states have to be avoided, because one cannot lose investment itself in the hope of making a return on investment.

ii. Insurance: Insurance involves taking insurance cover for people and property of the MNC project in the hostile country. In developed nations political risk insurance policies are available which the MNCs can buy to cover investments in risky countries. Third world countries also have overseas business risk insurance outfits. Policies that provide for a maximum insured amount and a current insured amount are available. Premium is payable on the current insured amount at usual rates and on the difference between maximum and current insurance amounts, called standby insurance level, a nominal rate of premium is charged.

iii. Negotiating the Environment: The MNC and the host Government negotiate on the rights and responsibilities of both and abide by the 'concession'

agreement reached. But new rulers may repudiate `concession' agreement agreed to by the past ruler. Such repudiation happens in democratic countries as well.

iv. Structuring the Investment: The investment in the project in the host country can be structured such that host government intervention costs the Govt. exchequer heavily. This is achieved by adjusting production, transportation export, technology transfer and financial policies. The foreign project may be just an assembling unit or a just a part manufacturer.

v. Patenting: The MNC can register its patent generally and make for host countries difficult to infringe patent rights or trade mark rights.

6.2. Post-investment Operating Phase

After investment is made, through operating policies, political risk can be managed. The alternatives are: i. Short term profit maximization, ii. Changing the BCR of expropriation, iii. Developing local stake holders and iv. Adaptation.

i. Short-term Profit Maximization policy involves stressing that investment made is quickly paid back. On finding the political environment hot, the MNC can go for a policy of quick realization by avoiding further commitments in the project. A posture such as this itself may alter the host government's attitude as capital flights are unaffordable in these days of globalization.

a. Shorter Payback Period: According to this method, projects with shorter payback period are normally preferred to those with longer payback period. It would be more effective when it is combined with a "cut off period". Cut off period denotes the risk tolerance level of the firms. For example, a firm has three projects. A , B and C for consideration with different economic lives say 15, 16 and 8 years respectively and with payback periods of say 6, 7and 5 years. Of these three, project C will be preferred, for its payback period is the shortest. Suppose, the cut off period is 4 years, then all the three projects will be rejected.

b. The Finite-horizon Method: This method is similar to payback method applied under the condition of certainty. In this method, a terminal date is fixed. In the decision making, only the expected returns or gain prior to the terminal date are considered. The gains or benefit expected beyond the terminal date are ignored the gains are simply treated as non-existent. The logic behind this approach is that the developments during the period under consideration might render the gains beyond terminal date of no consequence.

ii. Changing the Benefit/Cost Ratio (BCR) policy involves the MNC adopting a pro-host country, increased benefit and decreased cost policy. Policies such as establishing local R&D facilities, export-thrust, technology transfer etc., will help the MNC buying peace with adversaries.

iii. Developing local stake holding policy involves, the MNC concerned creating customer base, local investor base, domestic supply-chain base, etc so that expropriation will be resented to by local customers, investors and channel partners. It must be noted while 100% subsidiaries face nationalization threats, joint-venture do not suffer such threats. Because low share holding serve as a buffer against nationalization drives.

iv. Adaptation policy involves adapting operating policies to the dictates of the political boss. If expropriation is pressed, the MNC can opt for management contracts or franchising so that operational aspects are not handled by the MNC.

6.3. Post-expropriation Phase

In the post-expropriation phase, damage control and benefit harvesting exercises need to be pursued. Negotiation, Power leveraging, Legal recourse and Surrender are the options.

Negotiation: After the expropriation, continued contacts and negotiation with the Govt. help in harvesting more benefits.

Power Leveraging involves the MNC applying power on the host government through diplomatic channels, multinational bodies and parent country's government for speedy harvesting.

Legal Recourse involves resorting to local remedies to recover the value of property that are confiscated. This is a long-drawn-cut remedial course.

Surrender policy involves giving up the above referred to courses and agreeing to salvage the investment.

7. ECONOMIC RISK

Risk is the fluctuation in income, expenses, costs, price, etc. If there is zero fluctuation, there is no risk. Risk is measured through standard deviation (SD), or variance [which is nothing but squared SD] or Beta or coefficient of variation.

Economic risk refers to problems arising due to economic weaknesses and uncertainties of the host country's economy. Huge budgetary deficit, fiscal imprudence, higher inflation, structural rigidities, higher monetary expansion, exchange rate fluctuations, public sector inefficiency, political intervention in business policies, infrastructural bottlenecks, archaic legal system, rising public sector wage bill, etc., lead to economic fluctuation in earnings of the private investments. Economic stagnation, financial disability of banking and financial institutions, weaknesses of primary and secondary capital markets, economic policy discrepancies, high levels of taxation hurting private initiative, etc., affect risk-return patterns of private and MNC investments.

7.1. Types of Economic Risk

Credit risk, Liquidity risk, Market risk, Interest rate risk, Earnings Risk, Solvency (or default)risk, Inflation (or Purchasing Power) risk, Currency (or exchange rate) risk and Crime risk.

i. Credit risk: The danger of fluctuation, especially decrease in the value of assets, especially loans and advances, is called credit risk.

ii. Liquidity risk: Liquidity risk refers to the danger of being left with insufficient cash to meet cash payment obligations.

iii. Market risk: Market risk is the danger of fluctuation in the values of assets, liabilities and equity that may bring about loss. Changes in interest rates, Changes in the taste and preferences of customers, Changes in currency prices, Changes in monetary policies, Changes in investor perceptions of risk of exposures with the bank, etc.

iv. Interest rate risk: Interest rate risk is the danger of fluctuation in interest rates affecting the net income, values of assets, liabilities and equity.

v. Earnings Risk: Earnings Risk is the danger that the rate of return on assets or equity or its net earnings may fall. Increasing competition is the major cause.

vi. Solvency (or default) risk: Solvency (or default) risk is the danger that the business may fail due to negative profitability and erosion of its capital.

vii. Inflation (or Purchasing Power) risk: Increase in price levels reducing the purchasing power of the business and value loss in monetary assets

viii. **Currency (or exchange rate) risk:** Fluctuation in exchange rates leading to fluctuation in values of foreign exchange exposures and hence the bottom-line of the business.

ix. **Political risk:** Fluctuation in political climate, within or outside the country, leading to possible uncertainty in policy environment affecting business operations.

x. **Crime risk:** Risk arising out of dishonest operations of employees, governing board, customers, owners, etc.

8. HANDLING ECONOMIC RISK

Several alternative methods exist for incorporating the additional economic risk. They include:

- Adjusting the payback period or required return
- Adjusting cash flows to reflect the specific impact of a given risk
- Insurance
- Hedging
- Adjusting the expected cash flows
- Using certainty equivalents to get of expected cash flows

These are dealt below.

i. **Adjusting the discount rate or payback period:** Upward revision of discount rate or downward pushing of pay back period is adopted. The additional risks confronted abroad are usually described in general terms, instead of being related to their impact on specific investments. This rather vague view on risk probably explains the prevalence among multinationals of two unsystematic approaches to account for the added economic risk of overseas operations. One is to use a higher discount rate for foreign operations, another to require a shorter payback period. For instance, if exchange restrictions are anticipated, a normal required return of 15% might be raised to 20% or a five-year payback period may be shortened to three years. Neither of the aforementioned approaches, however, lends itself to a careful evaluation of the actual impact of a particular risk on investment returns.

For example, the rate of risk free return (r) employed in the discounting is 10 per cent and the risk premium factor (d) for different degrees of risk be: 2, 4 and 5 per cent for mildly risky, moderately risky and high risk (or speculative) projects respectively. Then the total rate of discount (D) would, respectively, be 12 per cent, 14 per cent and 15 per cent for the three projects. The idea is the greater the risk the higher the discount rate.

That is, RADR =D= Risk free return (r) + Premium for risk depending on the risk (d). Then the discounting factor for the first year return : $i/(1+D)^1$; for the 2^{nd} year: $1/(1+D)^2$ and so on.

The Risk Adjusted Discount Rate is composite of discount rate which combines both time and risk factors. Risk Adjusted Discount Rate can be used with both N.P.V. and I.R.R. In the case of N.P.V. future cash flows should be discounted using Risk Adjusted Discount Rate and then N.P.V. may be ascertained. If the N.P.V. were positive, the project would qualify for acceptance. A negative N.P.V. would signify that the project should be rejected. If I.R.R. method were used, the I.R.R. would be computed and compared with the modified discount rate. If it exceeds modified discount rate, the proposal would be accepted, otherwise rejected.

Merits of R.A.D.R. Method : This technique is simple and easy to handle in practice.

i) The discount rates can be adjusted for the varying degrees of risk in different years, simply by increasing or decreasing the risk factor (d) in calculating the risk adjusted discount rate.

ii) This method of discounting is such that the higher the risk factor in the remote future is automatically accounted for. The risk adjusted discount rate is a composite rate which combines both the time and discount factors.

Demerits of PADR Method

i) The value of discount factor must necessarily remain subjective as it is primarily based on investor's attitude towards risk.

ii) A uniform risk discount factor used for discounting al future returns is unscientific as it implies the risk level of investment remains same over the years where as in practice is not so.

Illustration:.

The following details related to two projects :

	X	Y
Capital of outlay	$20,000	$20,000
Cost of inflows		

Year 1 8,000 10,000
Year 2 8,000 12,000
Year 3 4,000 6,000

Risk less rate of return is 5%. Project X is less risky as compared to Project Y. The management considers risk premium rates at 5% and 10% respectively for X and Y as appropriate for discounting the respective cash inflows. State which project is better?

Risk Adjusted Discount Rate will be: Project X : 5 + 5 = 10% ; Project Y : 5 + 10 = 15%

CALCULATION OF N.P.V. AT R.A.D.R.

Project X Project Y

Year	Cash Inflows	P.V.F. at 10%	P.V.	Cash Inflows	P.V.F. at 15%	P.V.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	8,000	. 909	7,272	10,000	.870	8,700
2	8,000	.826	6,608	12,000	.756	9,072
3	4,000	.751	3,004	6,000	.658	3,948
PV of cash flow 21,720			16,884			
Less : Invt.			20,000			20,000
	N.P.V.		– 3,116			+ 1,720

Since N.P.V. is positive in the case of Project Y, Y is superior to X.

ii. Adjusting Cash Flows: Though risk analysis requires an assessment of the magnitude and timing of risks and their implications for the projected cash flows. Adjusting cash flows makes it possible to fully incorporate all available information about the impact of a specific risk on the future returns from an investment. A sophisticated cash flow adjustment techniques known as

uncertainty absorption is to charge each year's flows a premium for economic risk.

Certainty-Equivalent Coefficient Approach is an approach towards adjusting the cash f.ow. The risk element in any decision is often characterized by the two outcomes: the *'potential gain'* at the one end and the *'potential loss'* at the other. These are respectively called the focal gain and focal loss. In this connection, an author proposes the concept of "potential surprise" which is a unit of measurement indicating the decision-maker's surprise at the occurrence of an event other than what he was expecting. He also introduces another concept – the "certainty equivalent" of risky investment. For an investment X with a given degree of risk, investor can always find another risk less investment X_1 such that he is indifferent between X and X_1. The difference between X and X_1 is implicitly the risk discount.

The risk level of the project under this method is taken into account by adjusting the expected cash inflows and the discount rate. Thus the expected cash inflows are reduced to a conservative level by a risk-adjustment factor (also called correction factor). This factor is expressed in terms of Certainty – Equivalent Co-efficient which is the ratio of risk-less cash flows to risky cash flows. Thus Certainty Equivalent Co-efficient = (Riskless cash flow) / Risky cash flows.

This co-efficient is calculated for cash flows of each year. The value of the co-efficient may vary between 0 and 1, there is inverse relationship between the degree of risk, and the value of co-efficient computed. These adjusted cash inflows are used for calculating N.P.V. and the I.R.R. The discount rate to be used for calculating present values will be risk-free (i.e., the rate reflecting the time value of money). Using this criterion of the N.P.V. the project would be accepted, if the N.P.V. were positive, otherwise it would be rejected. The I.R.R. will be compared with risk free discount rate and if it is higher the project will be accepted, otherwise rejected.

Illustration: A company employs the certainty equivalent approach in the evaluation of risky investments. The following information of a new project is available. Amount of initial investments: $. 100,000. Cash inflows after tax:

Year	Amount $.	Certainty Equivalent Co-efficient
1	80,000	.8
2	70,000	.7
3	65,000	.6
4	60,000	.4
5	40,000	.3

The company's cost of equity capital is 18%; its cost of debt is 9% and the risk less rate of interest in the market on government securities is 6%. Should the project be accepted?

Solution : Calculation of N.P.V. of Adjusted Cash Inflows at Risk less Rate (6%)

Year	Cash Inflows	C.E.C	Adjusted Cash inflow	P.V.F at 6%	P.V
(1)	(2)	(3)	(4)	(5)	(6)
1	80,000	.8	64,000	.943	60,352
2	70,000	.7	49,000	.890	43,610
3	65,000	.6	39,000	.840	32,760
4	60,000	.4	24,000	.792	19,008
5	40,000	.3	12,000	.747	8,964
			PV of cash flow		164,694
			Less : Invt.		100,000
			N.P.V. =		64,694.

Project should be accepted.

iii. Insurance: Economic risks such as currency inconvertibility can be covered by insurance.

iv. Hedging: Economic risks such as currency fluctuations can be hedged in the forward exchange market. The uncertainty absorption approach would involve adjusting each period's dollar cash flow, Xi, by the cost of an exchange risk management program. Thus, if D_i is the cost of an exchange risk in period i, for example, then the present value of cash flow in period i would be set equal to:

$(X_i - D_i) / (1 + k)^i$

where, k is cost of capital used to discount the adjusted cash flow.

With regard to exchange risk, the uncertainty absorption technique is fine if local currency cash flows are fixed, as in the case of interest on a foreign currency dominated bond. Where income is generated by an ongoing business operation, local currency cash flows themselves will vary with the exchange rate. There is a set of equilibrium conditions tending to hold in efficient financial markets that generally cause exchange rate changes and inflation to have only a minimal impact on real cash flows.

v. Adjusting Expected Values: The recommended approach is to adjust the cash flows of a project to reflect the specific impact of a given risk, primarily because there is normally more and better information on the specific impact of a given risk on a project's cash flows than on its required return. According to modern capital asset pricing theory, adjusting expected cash flows, rather than the discount rate, to reflect incremental risks is justified as long as the systematic risk of a proposed investment is unchanged.

vi. Using Certainty Equivalents: An alternative approach is to use the certainty-equivalent method of Alexander Robichek and Stewart Myers, where risk-adjusted cash flows are discounted at the risk free rate of return. However this method requires generating certainty-equivalent cash flows for which no satisfactory procedure has yet been developed. Furthermore, it involves losing some information on the valuation of future cash flows that is provided by shareholders in the form of their required yield on a typical firm investment.

Appendix

UNCTAD Investment Brief Number 4 2005

Table 1. The top 20 of the world's largest MNCs, by number of host economies, 2003

(Number of host economies in which MNC is present)

Corporation	Home economy	Main industry	No. of host countries
Deutsche Post	Germany	Transport and storage	102
Ford Motor Company	United States	Motor vehicles	98

Nestlé	Switzerland	Food and beverages	97
Royal Dutch/Shell Group	UK/Netherlands	Petroleum expl./ref./distr.	93
Siemens	Germany	Electrical & electronic equipment	84
Unilever	UK/Netherlands	Diversified	83
BASF	Germany	Chemicals	74
Bayer	Germany	Pharmaceuticals/chemicals	67
IBM	United States	Electrical & electronic equipment	63
Total	France	Petroleum expl./ref./distr.	63
Sanofi-Aventis	France	Pharmaceuticals	61
Novartis	Switzerland	Pharmaceuticals	56
British American Tobacco	United Kingdom	Tobacco	55
Nokia	Finland	Telecommunications	54
Altria Group	United States	Tobacco	54
Pinault-Printemps Redoute	France	Wholesale trade	54
United Technologies Corp.	United States	Transport equipment	54
Abbott Laboratories	United States	Pharmaceuticals	52
Volvo	Sweden	Motor vehicles	52
Lafarge	France	Non-metallic mineral products	51

Source: UNCTAD.

Table 2. Top 10 host economies most favoured by the top 100 TNCs, 2003

(Percentage of top 100 TNCs with a foeign affiliate in the location)

Developed countries		Africa		Asia and Oceania		Latin America and Caribbean		SEE and CIS	
UK	98	South Africa	43	Hong Kong (China)	67	Brazil	75	Russia	45
Netherlands	95	Morocco	27	Singapore	65	Mexico	72	Romania	30
United States	92	Egypt	26	China	60	Argentina	63	Ukraine	20
Canada	87	Kenya	20	Turkey	52	Venezuela	56	Bulgaria	15
France	82	Nigeria	17	Taiwan Province of China	49	Chile	46	Croatia	10
Germany	81	Tunisia	16	Malaysia	47	Colombia	44	Serbia and Montenegro	9
Italy	78	Côte d'Ivoire	15	Rep. of Korea	42	Peru	34	Kazakhstan	8
Spain	77	Cameroon	12	India	38	Panama	28	Azerbaijan	5
Switzerland	77	Gabon	9	Thailand	36	Bermuda	23	Bosnia and Herzegovina	4
Belgium	75	Ghana	9	United Arab Emirates	31	Ecuador	22	Uzbekistan	4

Questions

1. Explain the concept and nature of Foreign Direct Investment by MNCs.
2. Discuss the emergence and benefits and merits of FDI by MNCs.
3. Discuss the need for FDI from the host and investor's view points.

4. Explain the Strategies of FDI followed by the MNCs

5. Bring out the Opportunities and Trend in FDI in the recent years

6. Explain the concept of political risk and its determinants.

7. How can you deal with political risk in the pre-investment stage?

8. How is political risk handled during post-investment and expropriation phases?

9. What is economic risk? Explain its components.

10. Explain the methods of dealing with Economic Risk.

11. In a situation of feared expropriation, the cash flow right now obtainable by pulling out is $ 128mn mn whether expropriation happens or not. If waited for a year the estimated cash flow when expropriation happens is $ 100mn and when expropriation does not happen it is $ 300. The cost of capital is 20%. What should be the minimum probability of expropriation for exit right now to emerge as the better course?

12. The following details related to two projects X and Y.

	X	Y
Capital of outlay	$ 30,000	$30,000
Annual Cash inflows:		
Year 1	16,000	12,000
Year 2	16,000	24,000
Year 3	16,000	12,000

Risk less rate of return is 4%. The management considers risk premium rates at 5% and 7% respectively, for X and Y as appropriate, for discounting the respective cash inflows. Find the better of the 2 projects.

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UNIT–III

CAPITAL BUDGETING

The objectives of this Unit: To know
i. Concept of capital budgeting
ii. Basics of capital budgeting
iii. Requisites for appraisal of capital projects
iv. Techniques of evaluation
v. Incremental cash flow
vi. Parent vs. Project cash flow
vii. Adjusted present value
viii. CAPM

MNCs invest in projects in different countries. These projects involve investment in physical assets, as opposed to financial assets like shares, bonds or funds. Projects necessarily involve à processing/manufacturing/service works. These require investments with a longer time horizon. The initial investment is heavy in fixed assets and investment in permanent working capital is also heavy. The benefits from the projects last for few to many years.

Projects by MNCs are nothing but foreign direct investments committed by MNCs, afresh or in addition to already existing project investment. Projects may be new ones, expansion of existing ones, diversification of existing ones, renovation or rehabilitation of infirm ones, or captive service projects. An MNC may put up a new subsidiary, increase state in existing subsidiary or acquire a running firm. All these are considered projects by MNCs.

FDI projects of MNCs involve huge outlay and last for years. Hence these are riskier than investments in financial assets. FDI projects have a technological dimension and environmental dimension. So, careful analysis is needed. Decisions once taken cannot be reversed in respect of capital projects. So, "listen before leaping" and "think before jumping" are the caveats needed. Thorough evaluation of costs and benefits is needed.

1. CONCEPT OF CAPITAL BUDGETING

Every institution has to commit funds in fixed assets and permanent working capital. The type of fixed assets that a firm owns influences i. the pattern of its cost (i.e. high or low fixed cost per unit given a certain volume of production), ii. the minimum price the firm has to charge per unit of product, iii. the break-even position of the company, iv. the operating leverage of the business and so on. These are very vital issues shaping the profitability and risk complexion of business. Hence the significance of capital budgeting.

1.1. Selection by right evaluation: Capital budgeting is significant because it deals with evaluation of projects. A project must be scientifically evaluated, so that no undue favour or dis-favour is shown to a project. A good project must not be rejected and a bad project must not be selected. Hence the significance of capital budgeting.

1.2. Nature of Capital budgeting: Capital investment proposals involve i. Longer gestation period, ii. Huge capital outlay, iii. Technological considerations needing technological forecasting, iv. Environmental issues too, which require the extension of the scope of evaluation to go beyond economic costs and benefits, v. Irreversible decision once get committed, vi. Considerable peep into the future which is normally very difficult, vii. Measuring of and dealing with project risks which is a daunting task in deed and so on. All these make capital budgeting a significant task.

1.3. Capital rationing: Capital budgeting involves capital rationing. That is the available funds must be allocated to competing projects in the order of project potentials. Usually, the indivisibility of project poses the problem of capital rationing because required funds and available funds may not be the same. A slightly high return projects involving higher outlay may have to be skipped to choose one with slightly lower return but requiring less outlay. This type of trade-off has to be skillfully made.

2. BASICS OF CAPITAL BUDGETING

2.1 Basis estimates: The building blocks of capital budgeting exercise are mostly estimates of price and variable cost per unit output, quantity of output that can be sold, the tax rate, the cost of capital, the useful life of project, etc. over a period of years. A clear system forecasting is needed. Computing cash

flows is another basic aspect of assessment of investment programmes. You will know this soon.

2.2. Methods of evaluation of projects: There are more than a dozen methods of evaluation projects. The choice of method is important. And different methods might rank projects differently leading to a confused picture of project desirability ranks. A clear thinking is needed so that confusion is not descending on the choice of projects. Hence the significance of capital budgeting.

2.3. Basic methods of capital budgeting: Basic methods of capital budgeting include payback period, accounting rate of return, internal rate of return and net present value technique, terminal value.

2.4. Advanced methods of capital budgeting: Advanced methods include: Decision Tree Analysis, CAPM, Simulation Analysis, Sensitivity Analysis, Probability Approaches, etc.

2.5. Evaluation Parameters: Evaluation of capital budgeting involves in-depth **feasibility analysis**. Evaluation shall cover **technical, economic, market and financial feasibilities**, break-even return on investment, payback period, sensitivity, risk-return, liquidity, solvency, and related aspects.

Capital projects need to be thoroughly evaluated as to **costs and benefits**. The costs of capital projects include the initial investment at the inception of the project. Initial investment made in land, building, machinery, plant, equipment, furniture, fixtures, etc. generally, gives the installed capacity. Investment in these fixed assets is one time. Further, a one-time investment in working capital is needed in the beginning, which is fully salvaged at the end of the life of the project.

Against this fund committed, returns in the form of net cash earnings are expected. Net cash earnings = Gross income - Variable cost - Fixed cost (including depreciation) - Interest and Tax) + Depreciation. These are computed as follows. Let `P' stand for price per unit, `V' for variable cost per unit, `Q' for quantity produced & sold, `F' stand for total fixed expenses exclusive of Depreciation, `D' stand for depreciation on fixed assets, `I' for interest on borrowed capital and `T' for tax rate).

Then cash earnings or Cash Flow $= [(P-V)Q - F - D-I]\ (1-T) + D$.

These cash earnings have to be estimated through out the economic life of the investment. That is, all the variables in the equation have to be forecast well over a period of years.

Now that, we have the benefits from the investment estimated, the same may be compared with costs of the capital project and 'netted' to find out whether costs exceed benefits or benefits exceed costs. This process of estimation of costs and benefits and comparison of the same is called appraisal.

3. REQUISITES FOR APPRAISAL OF CAPITAL PROJECTS

The computation of profit after tax and cash flow are much relevant in evaluation of projects. Hence this is presented here as a prelude to better understanding the whole process.

Say in fixed assets at time zero, you are investing $ 2000,000. You have estimated the following for the next 4 years.

Year	Expected Sales (units) (Q)	Expected Selling price (P) $.	Tax rate (T)	Expected variable cost per unit (V) $.	Fixed expenses (excluding depreciation) (F) $.
1	30,000	200	30%	100	1200,000
2	30,000	250	30%	120	1300,000
3	20,000	300	40%	150	1400,000
4	21,000	300	40%	200	1500,000

With this information, we can estimate profit after tax for the business. For that, apart the given variable expenses and fixed expenses, depreciation of the fixed assets has to be considered. The annual value of depreciation is given by the cost of fixed assets divided by number of years of life. In our case the figure comes to $ 2000,000/4 = $ 500,000.

The calculations are given in three stages, viz., computation of profit before tax (PBT), profit after tax (PAT) and cash flow.

The profit before tax (PBT) for a period is given by: (selling price per unit - variable cost per unit) x (No. of units sold) - Fixed expenses - Depreciation. So, for the 1st year PBT = (200-100)(30,000) – 1200,000 - 500,000 = 3000,000 - 1200,000 -500,000 =$ 1300,000. Table below gives the working and results.

Year	(P – V) $	*	(Q)	-	F$	-	Dep.$	=	PBT $
1	(200-100)	*	(30,000)	-	1200,000	-	500,000	=	1300,000
2	(250-120)	*	(30,000)	-	1300,000	-	500,000	=	2100,000
3	(300-150)	*	(20,000)	-	1400,000	-	500,000	=	1100,000
4	(300-200)	*	(21,000)	-	1500,000	-	500,000	=	100,000

Profit after tax (PAT) for the different years is obtained by subtracting tax from the PBT. Instead a simple formula can be used, as follows.

Profit after tax = PAT = PBT (1-Tax Rate)

So, for the first year PAT = 1300,000 (1-30%) = 1300,000 (0.7) = 910,000. Similarly for the other years the profit figures can be obtained in table below.

Year	PBT	Tax rate	Tax= (PBT) x (Tax Rate)	PAT = (PBT – Tax) **OR** PBT (1 – TR)
1	1300,000	30%	390,000	910,000
2	2100,000	30%	630,000	1470,000
3	1100,000	40%	440,000	660,000
4	100,000	40%	40,000	60,000
Total	4600,000		1500,000	3100,000

Cash-flow from operations is equal to PAT plus depreciation. Table below gives cash flow from business, annual and cumulative in the last two columns.

Year	PAT	+	DEP	=	Cash Flow	Cumulative Cash Flow
1	910,000	+	500,000	=	1410.000	1410,000
2	1417,000	+	500,000	=	1970,000	3380,000
3	660,000	+	500,000	=	1160,000	4540,000
4	60,000	+	500,000	=	560,000	5100,000

4. TECHNIQUES OF EVALUATION

There are several techniques of evaluation of capital investments. Some important ones are discussed here. Payback period, accounting rate of return, net present value, internal rate of return, decision tree technique, sensitivity analysis, simulation analysis and capital asset pricing model (CAPM) are certain methods of appraisal.

Simple Techniques

Payback period, accounting rate of return, net present value and internal rate of return are simple techniques followed here.

Some problems involving simple techniques of evaluation are attempted below.

Illustration 1: Let us evaluate the case in terms of the simple techniques of evaluation of capital investment.

(i) Payback Period (PBP) Method

Pay back period refers to the number of years one has to wait to go back the capital invested in fixed assets in the beginning. For this we have to get the cash flow from business. If the cash flow is uniform year after year, the formula for cash flow is : Original Investment / Annual Cash Flow. If the cash flow is not uniform, the following formula is used:

$$\sum_{t=1}^{n} CF_t - I = 0$$

where `t' = 1 to n, I = initial investment, $CF_t$ = cash flow at time `t' and t = time measured in years.

Facts of the case: Initial Investment \$ 2000,000. Cash flows 1st through 4th years: \$ 1410,000, \$ 1970,000, 1160,000 and \$560,000. So, after 1st year a sum of \$ 1410,000 is returned. By next year a sum of \$ 1970,000 is returned. But to fully get back the Initial Investment \$ 2000,000, we have to get back only \$ 590,000 (i.e., \$2000,000 - \$1410,000). So, in the second we have to wait only for part of the year to get back \$ 590,000. The part of the year = 590,000/1970,000 =0.299 or approximately 0.30. That is, pay back period is 1.30 years or 1 year, 3 months and 19 days. In general pay-back period is given by `n' in the equation.

Normally, business as want projects that have least pay back period, because the invested money is got back very soon. As future is risky, earlier one gets back the money invested the better for him. Some businesses fix a maximum limit on pay back period. This is the cut-off pay-back period, serving as the decision criterion. Accordingly a pay back period ceiling of 3 years means, only projects with payback period equal to or less than 3 years will be accepted.

Merits of Payback Period

i. It is cash flow based which is a definite concept
ii. Liquidity aspect is taken care of well
iii. Risky projects are avoided by going for low gestation period projects
iv. It is simple, *common sense oriented.*

Demerits of Payback Period

- Time value of money is not considered as earnings of all years are simply added together.
- Explicit consideration for risk is not involved.
- Post-payback period profitability is ignored totally.

(ii) Accounting Rate of Return (ARR) Method : Here the accounting rate of return (ARR) is calculated. It is also called as average rate of return. To compute ARR average annual profit is calculated first. From the PBT for different years (as in table) average annual PBT can be calculated.

The average annual PBT = Total PBT / No. of years

AAPBT = 4600,000/4 = 1150,000.

ARR = AAPBT / Investment **(or)** AAPBT / Average Investment

= 1150,000 / 2000,000 = 57.5% **(or)** = 1150,000 / 1000,000 = 115%

Note: Average Investment=(Original Investment + Salvage Value)/2 = (2000,000 + 0)/2 = 1000,000.

Merits of ARR

i. It is simple, common sense oriented
ii. Profits of all years taken into account

Demerits of ARR

- Time value of money is not considered
- Risk involved in the project is not considered
- Annual average profits might be same for different projects but accrual of profits might differ having significant implications on risk and liquidity.
- The ARR has several variants and that it lacks uniform understanding.

A minimum ARR is fixed as the benchmark rate or cut-off rate. The estimated ARR for an investment must be equal to or more than this benchmark or cut off rate so that the investment or project is chosen.

(iii) Net Present Value (NPV) Method

Net present value is computed given the original investment, annual cash flows (PAT + Depreciation) and required rate of return, which is equal to the cost of capital. Given these, NPV is calculated as follows:

$$NPV = - I + \sum_{t=1}^{n} CF_t / (1 + k)^t$$

Where, I = Original or initial investment, CF_t = annual cash flows

K = cost of capital and t = time measured in years.

For the problem we have done under the pay back period method we can get the NPV, taking k = say 10% or 0.1. Then the

$$NPV = - I + [CF_1 / (1 + k)^1 + CF_2 / (1 + k)^2 + CF_3 / (1 + k)^3 + CF_4 / (1 + k)^4]$$

$$= - 2000{,}000 + [1410{,}000/1.1 + 1970{,}000/1.1^2 + 1160{,}000/1.1^3 + 560{,}000/1.1^4]$$

$$= - 2000{,}000 + [1410{,}000 \times 0.909 + 1970{,}000 \times 0.826 + 1160{,}000 \times 0.751 + 560{,}000 \times 0.683]$$

$$= - 2000{,}000 + [1281{,}828 + 1628{,}099 + 871{,}525 + 379{,}042\ ]$$

$$= - 2000{,}000 + 4160{,}494 = \$\ 2160{,}494.$$

If the NPV = 0 or greater than zero, the project can be taken. In case there are several mutually exclusive projects with NPV > 0, we will select the one with highest NPV. In the case of mutually inclusive projects you first take up the one with highest NPV, next the project with next highest NPV, and so on as long

as your fund for investments lasts. The factor "k" need not be same for all projects. It can be high for projects whose cash flows suffer greater fluctuations due to risk, and lower for projects with lower fluctuation.

(iv) Internal Rate of Return (IRR) Method

Internal Rate of Return (IRR) is the value of "k" in the equation, $- I + [\square\ CF_t / (1 + k)^t] = 0$. In other words, IRR is that value of "k" for which aggregated discounted value of cash flows from the project is equal to original investment in the project. When manually computed, "k" i.e., IRR is got through trial and error and if need be, adopting a sort of interpolation. Suppose for a particular value of k, $- I + \Sigma\ CF_t / (1 + k)^t > 0$, we have to use a higher `k' in our next trial and if the value is < 0, a lower `k' has to employed next time. Then you can interpolate k. The value of `k' thus got is the IRR. For the project in question (dealt under NPV), the IRR is worked out as follows:

If we take, k = 50%, then $\Sigma CF_t / (1 + k)^t$ comes to 2269,877, i.e., $[1410{,}000/1.5 + 1970{,}000/1.5^2 + 1160{,}000/1.5^3 + 560{,}000/1.5^4]$. This is higher than the 'I' by 269,877. so, 'k' is enhanced to 60%. Then $1410{,}000/1.6 + 1970{,}000/1.6^2 + 1160{,}000/1.6^3 + 560{,}000/1.6^4$, i.e., $\Sigma CF_t / (1 + k)^t$ comes to 2019,433. This is higher than 'I'. So, we have to try at still higher discount rate, say 61%. The PV comes to $ 1997,083. Now, we can take the interpolated value as the IRR, which is between 60% and 61%.

$$IRR = 60\% + [(2019{,}433 - 2000{,}000)/(2019{,}423 - 1997{,}083)] \times (61\% - 60\%)$$

$$= 60\% + [(19{,}433/(22{,}350)] \times 1\% = 60\% + 0.869\% = 60.869\%$$

If the computed IRR is equal to or greater than cost of capital, the project will be selected. Otherwise, it is rejected. For mutually exclusive projects, project with highest IRR, subject to it being equal to or greater than cost of capital, will be chosen. For mutually inclusive projects, you start taking up first the project with highest IRR, next, the next highest IRR project and so on subject to (i) the IRR is greater than or equal to cost of capital and (ii) you have investible fund.

(v) Risk Analysis in the case of Single Project

Project risk refers to fluctuation in its payback period, ARR, IRR, NPV or so. Higher the fluctuation, higher is the risk and vice versa. Let us take NPV based risk.

If NPV from year to year fluctuate, there is risk. This can be measured through standard deviation of the NPV figures. Suppose the expected NPV of a project is \$ 1800.000, and std. deviation of \$ 600,000. The coefficient of variation CV is given by std. deviation divided by NPV. C.V = \$ 600,000/ \$1800,000 = 0.33

(vi) Risk Return Analysis for Multi Projects:

(a) Indivisible Projects: Indivisible projects cannot be divided into parts or fractions. Either you have to take a project in full or leave it out fully.

When multiple projects are considered together, what is the overall risk of all projects put together? Is it the aggregate average of std. deviation of NPV of all projects? No, it is not. Then What? Now another variable has to be brought to the scene. That is the correlation coefficient between NPVs of pairs of projects. When two projects are considered together, the variation in the combined NPV is influenced by the extent of correlation between NPVs of the projects in question. A high correlation results in high risk and vice versa. So, the risk of all projects put together in the form of combined std. deviation is given by the formula:

$\sigma_p = [\Sigma P_{ij} \sigma_i\sigma_j]^{1/2}$ where,

σ_p is the Combined portfolio std. deviation

P_{ij} is the correlation between NPVs of pairs of projects

$\sigma_i\sigma_j$ is the std. Deviation of i^{th} and j^{th} projects, i.e., any pair of projects taken at a time.

Illustration: Three projects have their std. deviations as follows: \$ 4000, \$ 6000 and \$ 10000. The correlation coefficients for different pairs are 1&2: 0.6, 1&3: 0.78 and 2&3: -0.5. What is the overall std. deviation of the portfolio of projects?

$\sigma_p = [\Sigma P_{ij} \sigma_i\sigma_j]^{1/2} = [\sigma_1^2 + \sigma_2^2 + \sigma_3^2 + 2P_{12}\sigma_1\sigma_2 + 2P_{23}\sigma_2\sigma_3 + 2P_{13}\sigma_1\sigma_3]^{1/2}$

$=[4000^2 + 6000^2 + 10000^2 + (2 \times 0.6 \times 4000 \times 6000) + (2 \times 0.78 \times 6000 \times 10{,}000) + (2 \times (-0.5) \times 10{,}000 \times 4000)]^{1/2}$

$= [16{,}000{,}000+36{,}000{,}000+100{,}000{,}000+28{,}800{,}000+93{,}600{,}000-40{,}000{,}000]^{1/2}$

$= [234{,}400{,}000]^{1/2} = \$\ 15{,}310.$

What is the return from these multiple projects? This is simple. It is the aggregate NPVs. Suppose the three projects have NPVs of $ 16,000, $ 20,000 and $ 44,000. The combined NPV $= 16,000 + 20,000 + 44,000 = $ 80000.

The combined coefficient of variation = combined std. deviation/combined NPV = $ 15340/$ 80000 = 0.19 = 19%. If we take the correlation factor unadjusted-combined std. deviation and combined NPVs, the coefficient of variation would have been: 20000/80000 = 0.25 = 25%. The correlation factor has resulted in reducing overall portfolio risk from 25% to 19%. This results essentially when there is low degree of positive correlation among the projects. The reduction in portfolio risk would have been more, if there is higher negative correlation among the projects.

(b) Divisible Projects: Divisible projects can be divided into parts or fractions and you can take any project in full or in fractions. Here in portfolio risk computation, the 'w_i'- the weight factor, will be introduced.

Illustration : Three projects involve a total outlay of $1000,000. Investment in any one project can be any amount, subject to the total outlay. The estimated return from the projects are 14%, 16% and 20%. The std. deviation of returns are 5%, 10% and 10%. The correlation coefficients are 1&2: 0.4, 2&3: 0.6 and 1&3: 0.2. A portfolio with weight 0.2, 0.3 and 0.5 for the three projects, respectively, is constructed. Find the portfolio return and risk.

Solution: The portfolio or combined return is simply the weighted return of the projects. This is given by: Σ WiRi where wi - is the weight (0.2, 0.3 and 0.5 for the three projects respectively) and Ri (14%, 16% and 20%) - is the respective project return.

R_p= Portfolio return = Σ WiRi = 0.2 x 14% + 0.3 x 16% 0.5 x 20%

= 2.8% + 4.8% + 10% = 17.6%

σ_p = Portfolio risk = $[\Sigma\Sigma W_i W_j \rho_{ij} \sigma_i \sigma_j]^{1/2}$

$= [W_1^2\sigma_1^2 + W_2^2\sigma_2^2 + W_3^2\sigma_3^2 + 2W_1W_2\rho_{12}\sigma_1\sigma_2 + 2W_2W_3\rho_{23}\sigma_2\sigma_3 + 2W_1W_3\rho_{31}\sigma_1\sigma_3]^{1/2}$

Putting the given values, we get that,

$\sigma_p = [1 + 9 + 25 + 2.4 + 18 + 2]^{1/2} = [57.4]^{1/2} = 7.576\%.$

5. INCREMENTAL CASH FLOW

When replacements are involved, the cash flow from new machine need to be adjusted for cash flow the old machine assuming it were in continuous use and we need to get the incremental cash flow. Incremental investment flow after considering the sales value of old machine adjusted for any tax credits (in the case of sale at a loss) or tax debits (in the case sales at a profit) is to be first computed. Incremental operating cash flow need to then computed. Taking the incremental cash outflow and inflow evaluation need to be made.

Illustration 1:

A firm is currently using a machine purchased two years ago for $ 1400,000. It has further 5 years of life. It is considering replacing of the machine with a new one, which will cost $ 2800,000. Cost of installation $ 200.000. Increase in working capital is $ 400,000. The profits before tax and depreciation are as follows for the two machines.

Year	1	2	3	4	5
Current Machine ($.)	600,000	600,000	600,000	600,000	600,000
New Machine ($.)	1000,000	1200,000	1400,000	1800,000	2000,000

The firm adopts fixed installment method of depreciation. Tax rate is 40% and capital gain tax is 10% on inflation un-adjusted capital gain.

Is it desirable to replace the current machine by the new one, taking the resale value of old machine at $ 1600,000 at present and using, PBP, ARR, NPV and IRR? (For NPV method take 10% as discount rate, for ARR method cutoff rate is 15% and for PBP method cutoff period is 3.5 years).

Solution

First we have to calculate the size of investment needed. This includes, purchase cost of new machine, cost of installation and working capital addition needed, reduced by net sale proceeds (after capital gain tax) of old machine.

The old machine's original cost	=	$. 1400,000
Depreciation for the past 2 years		
@ $. 2,00,000 [14,00,000 I life 7 years]		$. 400,000

Depreciated Value		$. 1000,000

Sales Value	$.	1600,000
Total gain	$.	600,000

This gain has two components, capital gain and revenue gain. Capital gain = $. Sale Value - original cost = $ 1600,000 - $ 1400,000 = $ 200,000. Revenue gain = Total gain - capital gain = $ 600,000 - $ 200,000 = $ 400,000. Tax on revenue gain = $ 400,000 x 40% = $ 160,000. Tax on capital gain = 200.000 x 10% = 20,000. Therefore, after tax adjustment, net sales proceeds of old machine = $ 1600,000 - $ 20,000 - $ 160,000 = $ 1420,000. Now we can compute net investment at time zero, i.e. at beginning as follows:

Cost of new machine	:	$. 2800,000
Add installation cost :		$. 200,000
Cost of machine	:	$. 3000,000
Add. Addl. Working Capital	:	$. 400,000
		$. 3400,000
Less net sale proceeds of old machine	:	$. 1420,000
Net Incremental Investment	:	$. 1980,000

Now we have to calculate change or increment in cash flow because of the firm going for replacement of old machine by new one. For this purpose, what is the cash flow from new machine and what would be the cash flow from old machine had the firm continued with that must be computed. The difference of former over the latter is the change in cash flow.

First let us take cash flow from new machine

Details	Year 1	Year 2	Year 3	Year 4	Year 5
PBT&D	1000,000	1200,000	1400,000	1800,000	2000,000
Less depreciation					
(3000,000 /5)	600,000	600,000	600,000	600,000	600,000
PBT	400,000	600,000	800,000	1200,000	1400,000

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Less Tax @ 40%	160,000	240,000	320,000	480,000	560,000
PAT	240,000	360,000	480,000	720,000	840,000
Add depreciation	600,000	600,000	600,000	600,000	600,000
Add working capital					
Recovery at year 5	-	-	-	-	400,000
(1) Cash flow	840,000	960,000	1080,000	1320,000	1840,000

Second, let us take cash flow from old machine

Details	Year 1	Year 2	Year 3	Year 4	Year 5
PBT&D	600,000	600,000	600,000	600,000	600,000
Less depreciation (14,00,000 / 7)	200,000	200,000	200,000	200,000	200,000
PBT	400,000	400,000	400,000	400,000	400,000
Less Tax @ 40%	160,000	160,000	160,000	160,000	160,000
PAT	240,000	240,000	240,000	240,000	240,000
Add depreciation	200,000	200,000	200,000	200,000	200,000
(2) Cash flow	440,000	440,000	440,000	440,000	440,000
Increment cash Flow = (1) – (2)	400,000	520,000	640,000	880,000	1400,000
Cumulative □ cash flow	400,000	920,000	1560,000	2440,000	3840,000

Note: The symbol '□' stands for incremental value.

a) Payback Period (PBP) Method Evaluation

Fresh additional investment needs is \$. 1980,000. Upto 3 years from now, \$. 1560,000 cumulative cash flow is got. So, PBP is 3 years plus that fraction of 4th year to recover balance \$. 420,000 (i.e., \$. 1980,000 - \$. 1560,000). The

fraction of year = 420,000/880,000 = 0.4772 a year. So, pay back period = 3.4772 years or 3 years and 5.8 months. The project's PBP of 3.4772 years is less than the cut off period is 3.5 years. So, replacement is advisable.

b) ARR Method of Evaluation

For ARR method, we have to get incremental PBT. This is computed as follows.

Details	Year 1	Year 2	Year 3	Year 4	Year 5
PBT: New machine	400,000	600,000	800,000	1200,000	1400.000
PBT: Old machine	400,000	400,000	400,000	400,000	400,000
□PBT	0	200,000	400,000	800,000	1000,000

Average annual ΔPBT = ΣΔ PBT/5 = 2400,000/5 = $480,000

Average Annual Δ investment = (ΔInvestment + Working capital)/2

= (1980,000 + 400,000)/2 = 1190,000

ARR = Average annual ΔPBT/ Average Annual Δ investment = (480,000 / 1190,000) x 100 = 40.34%

Note: Working capital $ 400,000 introduced at the beginning is recoverable at the end of the last year and this is treated as salvage value.

c) NPV Method of Evaluation (Discount rate 10%)

$$NPV = \sum_{t=1}^{n} CF_t / (1+k)^t - I$$

$= (400,000/1.1 + 520,000/1.1^2 + 640,000/1.1^3 + 880,000/1.1^4 + 1400,000/1.1^5) - 980,000$

= (363,636 + 429,752 + 480,841 + 601,051 + 869,296) – 1980,000

= 2744,576 – 1980,000 = $ 764,576

As NPV > 0, replacement is advised.

d) IRR Method of Evaluation

NPV at 10% discount rate is +ve. This itself shows that the IRR > 10%. So, the replacement is advised. Any how, we can calculate IRR too. Let us take the assumed IRR as 20%. At 20%, the NPV is: 2051,826 - 1980,000 = 71,826.

So, IRR is still higher. Let using at 22% as assumed IRR. The NPV = 1944,920 - 1980,000 = - 35,080. Since the NPV at 22% is negative and at 20% it is positive, IRR is > 20% but < 22%. We can interpolate as follows:

IRR = 20% + (71826 / (71826 + 35080)) x 2% = 20% +1.34 = 21.34.

As the IRR at 21.34% is > cut-off IRR of 10% replacement is advised.

Illustration 2

company brought a machine 2 years earlier at a cost of $ 60,000 and estimated its useful life as 12 years in all. Its current market price is $ 25,000. The management considers replacing this machine with a new one, life 10 years, price $ 100,000. The new machine can produce 15 units more per hour. The annual operating hours are 1,000 both for new and old machines. Selling price per unit is $ 3. The new machine will involve addl. material cost $ 6,000 and labour $ 6,000 p.a. But savings in cost of consumable stores of $ 1,000 and repairs by $ 1,000 p.a. will result. The corporate tax rate is 40%. Advice on the replacement assuming additional working capital of $ 10,000 introduced now, can be redeemed at 10 years later, cost of capital as 10% and SLM of depreciation, using NPV method.

Case Discussion

i) Computation cash outflow at present

Cash for new machine	$	100,000
Add. Addl. Working capital	$	10,000(110,000)
Less: (i)Sales value of old machine :	$	25,000
(ii) Tax shield on loss of old machine (book value – market value) x tax rate [(50,000 -25,000) x40%]:	$	10,000(35,000)
	=	75,000

ii) Computation of Addl. Gross Income

Addl. Production per annum = Hours of operation x Addl. Output per hour

= 1,000 x 15 = 15,000

Addl. Gross income per annum = Addl. Production p.a. x unit price

= 15,000 x $3 = $ 45,000

From 1 year to 10th year, \$. 45,000 addl. income is thus predicted.

iii) Cash flow computation

Details	Years 1 to 9	Year 10
Addl. Gross income	45,000	45,000
Add: Savings in consumable stores & repairs	2,000	2,000
	47,000	47,000
Less: Addl. Material & Labour cost	12,000	12,000
PBD &T	35,000	35,000
Less: Addl. Depreciation (10000-5000)	5,000	5,000
PBT	30,000	30,000
Les Tax @ 40%	12,000	12,000
PAT	18,000	18,000
Addl. Depreciation	5,000	5,000
Add. Working capital recovery	--	10,000
Cash flow	23,000	33,000

$$NPV = \sum_{t=1}^{n=9} CF_t / (1 + k)^t + CF_{10} / (1 + k)^{10}$$

Since uniform cash flow is found throughout 1st to 9th year, the NPV formulates can be slightly modified as:

$$NPV = [\, ACF \sum 1 / (1 + k)^t + CF_{10} / (1 + k)^{10}] - I$$

$$= 23{,}000 \,[\ 1 / 1.1 + 1 / 1.1^2 + \ldots.\ 1 / 1.1^9] + [33{,}000\, (1 / 1.1)^{10}] - 75{,}000$$

$$= (23{,}000 \times 5.759) + (33{,}000 \times 0.386) - 75{,}000$$

$= 145{,}195 - 75{,}000 =$ \$ 70195. The replacement is advised.

Illustration 3

A company has 3 investment proposals. The expected PV of cash flows and the amount of investment needed are as below:

Project	Investment required (000s)	PV of cash flow(000s)
1	$ 200	$ 290
2	$ 115	$ 185
3	$ 270	$ 400

If projects 1 and 2 are jointly taken, there will be no economics or diseconomies. If projects 1 and 3 are undertaken, economies result in investment and combined investment will be $ 440 thousand. If 2 and 3 are combined, the combined PV of cash flow will be $ 620 thousand. If all the 3 projects are combined. all the above economics will result but diseconomy in the form of additional investment of $ 125 thousand will be needed. Find which projects be taken.

Solution

Projects (1)	Invt. Needed (2)	PV of cash flows (3)	NPV 4 = (3)–(2)
1	200,000	290,000	90,000
2	115,000	185,000	70,000
3	270,000	400,000	130,000
1&2	315,000	475,000	160,000
1&3	440,000	690,000	250,000
2&3	385,000	620,000	235,000
1,2&3	680,000#	910,000*	230,000

Decision: Projects 1 & 3 will be chosen as the **NPV is higher.**

Some Workings:

Investment for 1,2 &3 = Investment for 1&3 + Investment for 2 + Addl. Inv.

= 440,000 + 115,000 + 125,000 = $680,000.

***PV of cash flow for 1,2 &3**= PV of cash flow of 2 &3 + PV of cash flow of 1

= 620,000 + 290,000 = $910,000.

6. PARENT VS PROJECT CASH FLOW

In the case of MNCs, the project cash flow differs from parent's cash flow (aggregate of parent's own cash flow and that of subsidiaries). So lateral summation cannot be made just like that.

6.1. Project cash flow: Normally project cash flow is simply based on the total investment needed, its operating results resulting in sales, variable cost, fixed cost, depreciation, taxes, working capital needed in the beginning and retrieved at the end, the salvage value of the project's fixed assets, etc. The computation of project cash flow will not consider any adjustments for synergies (additional sales achieved by the parent due to the establishment of the subsidiary) obtained by the group or the cannibalism (lost sales because of the formation of the subsidiary) suffered, difference between market price and transfer price charged for internal transactions, taxes paid or saved by the parent on royalties, management fees, etc received from subsidiary, exchange rate fluctuations. and so on. As a result a project's evaluation is devoid of reality.

6.2. Parent's Cash Flow: The project cash flow is not to be laterally added to the parent's cash flow to arrive at combined cash flow, because the parent suffers cannibalism or enjoys synergy due to the subsidiary, tax incidences on receipts from and payments to the subsidiary and so on. *Therefore, Project cash flow Σ Parent's cash flow.* So a project assessed without adjustments for the factors causing difference between project and parent cash flow will not reveal the correct picture of the real worth of the project. There fore adjustments are called for.

6.3. Adjustments Called for

A project's cash flow differs from a parent's incremental cash flow. Several factors stand behind this deviation as mentioned above. Hence adjustments of project's cash flow for these factors are called for. Some of the factors for which adjustments are required are as under:

i. Cannibalism Factor: An Indian firm has been supplying software for an US computing company. Now the Indian firm is floating its US subsidiary. The cash flow of the US subsidiary of the Indian firm needs adjustment for the replaced export earnings of the Indian parent firm. The new US subsidiary eats away its Indian parent's export earnings. Hence the cannibalism factor. The US subsidiary's cash flow must be reduced by the lost export earnings of its parent.

ii. Synergy Factor: The new US subsidiary of the Indian parent, by its high and contacts world over, enabled the Indian parent to export to Europe and Japanese markets. These exports are otherwise impossible to have been clicked. This is the synergy factor, which is opposite to cannibalism factor. The US subsidiary's cash flow must be inflated.

iii. Opportunity Cost Factor: Say, the Indian parent acquired long ago property for $ 20 mn in US, where the subsidiary now is carrying its operations. Presently market value of the property is $ 100 mn, though book value is only $ 20 mn. The opportunity cost of the property, namely its market value, must be considered for evaluation of the subsidiary. The capital outlay of the project must be based on the market value of the property used by it.

iv. Release of Blocked Factors: Suppose, US tax authorities had given a tax credit, being refund of excess property tax paid on the property, amounting to $ 2 mn. The money cannot be repatriated in India. But can be used for investment in US only. Since the commissioning of the US subsidiary has given an opportunity to activate the blocked fund, which is otherwise sunk fund, the initial cost of the US subsidiary can be reduced by the extent the released level of blocked funds.

v. Interest Free or Concessional Loan: Suppose the US Govt. gives a $ 60 mn loan repayable $ 20 mn p.a. over next 3 years, for the purpose of the Indian parent, in appreciation of the US subsidiary's strategic importance to US economy, free of interest. The excess of $ 60 mn over the present value of debt repayments affected at end of year 1, year 2 and year 3, is a benefit accruing to the parent. But, the subsidiary must be given credit, in turn, by the parent.

vi. Transfer Pricing: Transfer pricing refers to pricing product/service sales/purchases within group concerns. Should transfer pricing be at cost or at a profit, is a debatable issue. If intra concern transfers are made at cost, though it may be objective it conceals the efficiency of both the transferor and transferee. If intra-concern transfers are to be made at a profit the question of reasonable profit is to decided and there is no consensus as to what reasonable profit percentage.

The affiliates of an MNCs are closely integrated. As such, they can easily manipulate trade for maximization of the global profit, by reducing group tax outgo. They do it by means of under-invoicing and over-invoicing which are called `transfer pricing'. For instance, if the affiliate has to transfer funds to the

parent organization through the price channel, the goods coming from the parent company are over-priced or the goods going from the affiliate are under-priced. As to MNCs, transfer pricing has a great import as it can be used to reduce tax gain by shifting profit from high-tax zone to low-tax zone, to reduce duty levy by similar shifting and to avoid exchange controls.

The loss caused by transfer pricing may be borne by various groups in the host country: the government (loss of tax revenue), local shareholders (loss of legitimate share profit), trade unions (reduced wages), consumers (higher prices) and even other producers through worsening foreign exchange situation. Suppose the Indian parent reduces its corporate tax liability through transfer pricing mechanism. The tax saved by the parent has to be used to inflate the cash flow of the US subsidiary project.

Consider the case given below where tax liability is reduced through transfer pricing. Say, the parent company - 'A' is producing a product and transfers the same to its subsidiary - 'B'. Assume 'A' is high tax zone and 'B' is in low tax zone. In this situation, booking more profits through 'B' will help reaping maximum tax gain for the group as a whole. Let cost of production per unit is $ 10. And 'A' is annually sending 1,00,000 units to 'B' which sells at $ 25 a piece. If 'A' adopts a low mark up policy say cost + 40% what is the tax liability for individual firms and the group when 'A' is subjected to 50% tax and 'B' is subjected to 30% tax? When a high mark up of Cost + 80% is adopted what is the tax on profit? Consider table given below.

Transfer Pricing: Comparative tax scenario Without Import Duty

(Fig. in $ 000s)

	40% mark up			**80% mark up**		
Details	**Parent**	**Subsidiary**	**Effective Total**	**Parent**	**Subsidiary**	**Effective Total**
Revenue	1400	2500	2500	1800	2500	2500
Cost of goods sold	1000	1400	1000	1000	1800	1000
Gross profit	400	1100	1500	800	700	1500

Other expenses	100	100	200	100	100	200
Income before Tax	300	1000	1300	700	600	1300
Tax (50% for parent or 30% for Subsidiary.)	150	300	**450**	350	180	**530**
Profit after tax	**150**	**700**	**850**	**350**	**420**	**770**

A low mark up policy helps the group to reduce tax liability to $ 4,50,000 and maximize after tax profit to $ 8,50,000 as against a high mark up policy when after tax profit stands reduced to $ 7,70,000. The logic is simple. The group stands to gain by shifting more profit booking at the low-tax zone, namely at the subsidiary by marking a lower level of profit on sales from the parent.

On imports, ad valorem based import tariff is generally levied. So, when MNCs transfer goods from/to among their subsidiaries, implications of tariff on their profits must be looked into. We shall consider the case dealt above by introducing just one more variable, viz., import tariff levy of 20% on ad valorem basis. The results will be different mark-ups. Let us see the final results are depicted in table.

Transfer Pricing: Comparative tax scenario with Import Duty

(Fig. in $ 000s)

	40% mark up			**80% mark up**		
Details	**Parent**	**Subsidiary**	**Effective Total**	**Parent**	**Subsidiary**	**Effective Total**
Revenue	1400	2500	2500	1800	2500	2500
Cost of goods sold	1000	1400	1000	1000	1800	1000

Import duty paid by subsidiary	---	280	280	---	360	360
Gross profit	400	820	1220	800	340	1140
Other expenses	100	100	200	100	100	200
Income before Tax	300	720	1020	700	240	940
Tax (50% for parent or 30% for Subsidiary.)	150	216	**366**	350	72	**422**
Profit after tax	**150**	**504**	**654**	**350**	**168**	**518**

A low mark up policy still helps the group to reduce tax liability to $ 360,000 and maximize after tax profit to $ 6,40,000 as against a high mark up policy when the stands lower at $ 5,18,000.

vii. Tax: The combined cash flow is influenced by tax differences resulting from different transfer pricing scenarios as seen above. Therefore, project cash flow cannot be simply aggregated to the parent's cash flow. The tax differences accommodated transfer pricing must be accounted for. Hence the adjustment for tax effect. Besides the above, adjustments for withholding tax, tax credits and tax sops suffered/enjoyed by the parent due to the subsidiary's existence need to be adjusted. Tax rates differ between countries. Concessions differ.

Leasing and tax effect: Lease rental expense can be used to reduce tax incidence for the group, taking advantage of tax rate differences. The arrangements goes like this: Where the tax rate is less income should be maximized. So structure a lease such that the subsidiary there leases out at a higher rental to another group entity equipment. This way on the higher rental charge the later subsidiary claims more tax benefit, while the former pays only less tax on the rental income as tax rate is lower. But as the rental payment and

receipt are within, there is no outflow outside the group as such. But a net tax credit is worked out by the group.

Management expenses and Royalty fees: The same way lease rental arrangement is designed to arrive at a tax credit, management expenses and royalty fees can be worked out among the group concerns to work out a tax credit.

Leverage of capital structure and tax effect: Capital structure influences incidence of tax differently in different countries. The interest paid on borrowed capital is a deductible expense for computing income for income tax purpose. A US parent may ask its subsidiary in a tax incident country to leverage its capital by putting debt fund with the subsidiary, and reduce tax incidence over there. The borrowed fund will be used to pay dividend to the parent as well as interest to the parent.

viii. Additional Overhead: Because of the US subsidiary, the Indian parent's overhead costs such as solicitor charges, headquarters staff salary, management cost, etc., have increased. To the extent of increase in overhead, the US subsidiary's cash flows need downward adjustment.

ix. Other Benefits & Costs: Other benefits and costs, legal or illegal, directly attributed to the subsidiary, but accruing to the parent, must be accounted in the name of the subsidiary.

x. Discount Rates: The discount rates used for computing the present value of these different cash flow streams cannot be same. Discount rates must reflect the degree of risk associated with the cash flows. So adjustments in discount rate are called for.

xi. Exchange Rate Fluctuation: The above costs and benefits could be in dollar or rupee or other currency. The dollar denominated costs and benefits need to be converted into rupee or vice versa. For that exchange rate forecasting and restatement of costs and benefits in rupees are called for.

xii. Inflation: In capital budgeting due adjustments for inflation need to be built in computing annual costs, benefits and the resulting cash flows. When the inflation rates differ between the country of the parent and the country of its subsidiary, adjustments in parent's cash flow attributed to the subsidiary need to be done.

Inflation can be simply defined as an increase in the average price of goods and services. The accepted measure of general inflation is the Retail Price Index (RPI) which is based on the assumed expenditure patterns of an average family. General inflation is a factor in investment appraisal but of more direct concern is what may be termed specific inflation, i.e., the changes in price of the various factors which may affect the project being investigated, e.g., wage rates, sales prices, material costs, energy costs, transportation charges and so on. Every attempt should be made to estimate specific inflation charges and so on. Every attempt should be made to estimate specific inflation for each element of the project in a detailed manner as feasible.

Synchronised and Differential Inflation: Differential inflation is where costs and revenues change at differing rates of inflation or where the various items of cost and revenue move at different rates. This is the normal situation. But the concept of synchronised inflation - where costs and revenues rise at the same rate - although unlikely to be encountered in practice, is useful for illustrating various facets of project appraisal involving inflation.

Money Cash Flows and Real Cash Flows: Money cash flows are the actual amounts of money changing hands whereas real cash flows are the purchasing power equivalents of the actual cash flows. In a world of zero inflation there would be no need to distinguish between money and real cash flows as they would be identical. Where inflation does exist then a difference arises between money cash flows and their real value and this difference is the basis of the treatment of inflation in project appraisal. The real discount factor can be calculated with the help of the following formula.

$$\text{Real discount factor} = \frac{1 + \text{Money discount factor}}{1 + \text{Inflation rate}} - 1$$

Illustration : A machine costs \$ 10,000 and is expected to yield the following net cash returns (estimated in today's prices): 1^{st} Year \$. 5,000, 2^{nd} Year \$8000 and 3^{rd} Year \$ 6000. We expect inflation to be at the rate of 5% per annum, and the cost of capital is 15.5% per annum.

Solution: If we estimate cash flow at time 1 to be \$ 5,000 in `today's prices' it means that we would expect a cash receipt of \$. 5,000 in one year's time were there is no inflation. It further implies that with inflation at 5%, the actual cash receipt in one year's time will be Rs. 5,000 plus one year's inflation, and that,

similarly, the `actual' cash receipt in two years' time in the present case will be Rs. 8,000 plus two years' inflation and so on.

Since the object of the exercise is, as always, to discount the actual cash flows at the cost of money (15.5%), there is no point in discounting the flows as they stand as they do not represent our actual cash expectations.

Let us therefore calculate the actual cash flows we expect:

Year	Current prices	Actual cash flows
0	(10,000)	(10,000)
1	5,000 x 1.05	5,250
2	8,000 x $(1.05)^2$	8,820
3	6,000 x $(1.05)^3$	6,946

For each flow we have added inflation at 5% by multiplying by $(1.05)^n$, where 'n' is the number of years. Having calculated the `actual' cash flows, we are now in a position to complete the problem by discounting in the usual manner.

Year	Cashflow	DF @ 15.5%	PV
0	(10,000)	1	(10,000)
1	5,250	1/1.155	4,545
2	8.820	$[1/1.155]^2$	6,612
3	6.946	$[1/1.155]^3$	4,508
			NPV = 5,665

Since the NPV is positive, we should accept the investment.

7. ADJUSTED PRESENT VALUE

Present value of a project's future cash flows is simply the aggregation of the discounted values of future cash flows of the project. Net present value of a project is the excess of present value of future cash flows of a project over initial investment in the project.

In the context of a project executed by an MNC in a country, the net present value of the project can be computed as usual given the cash inflows and outflows and the firm's opportunity cost of capital.

But the net present value of the project computed above considers the project in isolation from the projects of the parent and its subsidiaries in this and other countries. This isolation is not good, because the new project would have positively and negati ely affected costs and benefits of other projects of the MNC and its subsidiaries and derived some indirect benefits and incurred some indirect costs for itself not accounted for in the usual method of appraisal. So, the usual method of computation net present value conceals the real picture. So, to obtain the real picture, present value computation must adjust costs and benefits of the project for its effect on the costs and benefits of other projects as dealt in the previous section. The resulting, net present value is called. in short, as adjusted present value.

7.1. Computation of APV

Computation of APV involves series of present value computations and netting them. Let us take an example.

Let the US Subsidiary require an investment of $ 122 mn, inclusive of the $20 mn book cost property used for the project. Blocked funds releasable $ 2 mn. Market value of the property is $ 100 mn. Annual sales for the project $ 100 mn for 3 years. Cannibalized exports $ 10 mn p.a. Newly enabled exports $ 20 mn p.a. Interest free loan receivable $ 60 mn, repayable in 3 annual installments of $ 20 mn beginning 1st year end. Annual tax saving through transfer pricing Rs. 250 mn p.a. Additional management cost Rs. 60 mn for first year, Rs. 170 mn in 2nd year and Rs. 280 for third year. Current exchange rate is Rs./$ 45. Expected 1st year - end spot rate is Rs. 46/$, 2nd year - end Rs. 47/$ and 3rd year - end Rs. 48/$. Discount rates for trade cash flows is 12%, financial cash flows 10% and tax saving cash flows 15%. Compute the APV, taking economic life of the project as 3 years.

Solution:

i. Computation of PV of net trade cash inflows

(Fig $ mm, unless otherwise stated)

Detail	*Year 1*	*Year 2*	*Year 3*
Project cash flow	100	100	100
Add: Enabled exports-synergy factor	20	20	20

Sub-Total	120	120	120
Less: Cannibalized export	10	10	10
Net Effective sales revenue	110	110	110
Expected Spot rate (Rs/$)	46	47	48
Adjusted cash flow (Rs. mn)	5060	5170	5280
Less: Additional Management cost	60	170	280
Net cash flow	5000	5000	5000
Present value interest factor at 12%	0.843	0.799	0.712
PV of trade cash flows	**4465**	**3985**	**3560**

(A) Total for three years = 4465 + 3985 +3560 = Rs. 12,010 mn

ii. Computation of PV of tax saving through transfer pricing

Detail	*Year 1*	*Year 2*	*Year 3*
Tax saved Rs.	250	250	250
PVIF at 15%	0.870	0.750	0.658
PV of tax saved Rs.	217.5	189	164.5

(B) Total for 3 years = 217.5 + 189 + 164.5 = Rs.571 mn

iii. Computation of PV of loan repayment

Detail	*Year 1*	*Year 2*	*Year 3*
Loan amount repaid	20	20	20
Expected Spot rate (Rs/$)	46	47	48
Loan amount repaid (Rs mn).	920	940	960
PVIF at 10%	0.909	0.826	0.751
PV of loan repayment (Rs. Mn)	836	776	721

Total for 3 years = 836 + 776 + 721 = Rs.2333 mn

Rupee value of loan at time zero = $ 60 mn x Rs. 45/$ = Rs. 2770 mn

(C) Therefore Net gain = RS. 2700 mn –Rs. 2333 mn = Rs. 367 mn

(D) Grand Total Cash Inflows = A + B + C

= Rs 12010 mn + Rs 571mn + Rs 367mn

= Rs 12948 mn.

iv. Computation of Rupee cost of original investment

Detail	*Amount $ mn*
Cost of the project given	$ 122 mn
Less: Book value of property used	$ 20 mn
Net	$ 102 mn
Add: Market value of property used	$ 100 mn
Total	$ 202 mn
Less: Blocked funds activated	$ 2 mm
Net Investment	$ 200 mn
Current spot rate Rs./$	45

(E) Rupee cost & original investment = $ 200 mn x 45 = Rs. 9000mn

v. Adjusted net present value = Rs. 12948 mn – Rs. 9000 mn

= Rs. 3948 mn

8. CAPM

Capital Asset Pricing Model (CAPM) is one of the premier methods of evaluation of capital investment proposals. CAPM gives a mechanism by which the required rate of return for a diversified portfolio of projects can be calculated given the risk. According to CAPM the required rate of return comprised of two parts: first, a risk-free rate of return and second a risk premium. Capital asset pricing theorem relates expected return with expected risk in the form of capital market line and security market line. These are presented now.

8.1 Capital Market Line deals with risk – return relationship for efficient portfolios. The expected return is given by the equation:

$$E(R_i) = R_f + \Sigma_i\, [E(R_m) - R_f] / \Sigma_m$$

Where,

$E(R_i)$	Expected portfolio return
R_f	Risk free rate
$[E(R_m) - R_f]$	Market risk premium
$[E(R_m) - R_f] / \Sigma_m$	Market price of risk = Slope of the CAPM

8.2 Security Market Line deals with risk – return relationship for in-efficient portfolios and individual securities.

The expected return is given by the equation:

$$E(R_i) = R_f + \square [E(R_m) - R_f]$$

$$\text{where } \Sigma = [COV(R_i, R_m)] / \Sigma_m^2$$

$$\text{Slope SML} = E(R_m) - R_f = \text{Market risk premium}$$

The risk premium on individual securities is a function of the individual security's contribution to the risk of the market portfolio. Individual security's risk premium is a function of the covariance of returns with the assets that make up the market portfolio.

8.3 CAPM Technique for Evaluating Capital Projects: Just we have to calculate the required rate of return for the capital project given its beta coefficient, the risk free return and the market return. Then get the estimated return for the project. If the estimated return for the project is greater than or equal to the required rate of return accept the project. Otherwise reject the project.

The risk-free return is the rate of return obtainable on risk free investments, like investment in government bonds. The market rate of return is the grand average rate of return obtainable on market representative portfolio. A surrogate for this can be return on representative market indices like NASDAQ, DOW JONES INDUSTRIAL, S&P 500, BSE SENSEX (India), and the like.

Beta of the project = covariance between returns of the project and the chosen market portfolio divided by variance of the return on the market portfolio. The returns spoken here can be historical or future expected or both. So, given the returns (expected or actual) of the market portfolio over a period of time and those of the capital project over the same time horizon as above, beta of the project can be calculated. The formula is

$$\text{Beta} = \Sigma (R_m - R)(r_i - r) / \square (R_m - R)^2$$

When R_m = Returns on market portfolio over times

R = Mean return market portfolio

r_i = Returns on the capital project over times

r = Mean return of the capital project

Suppose the following are the R_m and r_i for 5 years in rows (i) and (ii) below. Beta is computed based on the above as given in the rest of rows below

Year	1	2	3	4	5	Total
R_m	14	16	10	22	-2	60
r_i	15	18	15	28	-6	70
(R_m-R); R=12%	+2	+4	-2	+10	-14	0
(r_i-r); r = 14%	1	4	1	14	-20	0
$(R_m-R)(r_i-r)$	2	16	-2	140	280	436
$(R_m-R)^2$	4	16	4	100	196	320

Beta = 436/320 = 1.3625

Let R_f = 8%

Required Rate of Return = $R_f + (R - R_f)$ ß

= 8% + (12% -8%) 1.3625

= 8% + 5.45% = 13.45%

The mean $r_i = r$ = 14%. So, the actual or expected return is greater than required return. The project can be accepted.

CAPM assumes perfect capital market, free flow of information, homogeneous risk-return expectations of investors, diversification thoroughly reduces the unsystematic risk, existence of representative market portfolio and so on.

Questions:

1. Calculate pay-back period, ARR, NPV (at k = 10% and IRR given

Years	1	2	3	4
PBT (Lakhs $.)	40	45	50	55
Tax Rate	40%	40%	35%	35%

2. For two mutually exclusive projects the projected cash flows are:

Period	Project A	Project B
Time zero (outflows)	$. 2,20,000	$. 2,70,000
1 to 7 years (inflow each year)	$. 60,000	$. 70,000

Using IRR method, find the better of the two (an annuity of the 1 for 7 years has a present value of $. 3.92, $. 3.81, $. 3.91 and $. 3.60 at 17%, 18%, 19% and 20%).

3. Machine A costs $. 10,00,000 payable immediately, while Machine B costing $. 12,00,000 can be paid $. 6,00,000 down and balance 1 year hence. The cash flow from the machines are:

Year	1	2	3	4	5
A ($. Lakhs)	2	6	4	3	2
B ($. Lakhs)	nil	6	6	8	nil

At 7% discount rate which is better by NPV?

4. Texas filaments Ltd., has the following figures for its expansion plan, involving a capital outlay of $. 5 crs.

Year	1	2	3	4
Unit selling price($.)	7.0	10.0	12.0	15.0
Addl. Sales quantity (crs)	0.9	0.95	1	1.05
Unit variable cost ($.)	4.0	5.0	6.5	8.0
Tax rate	30%	30%	35%	35%

Find the PBP and ARR of the expansion project.

5. A project has an equity beta of 1.2 and debt beta zero and is a have a debt-equity ratio of 3:7. Given risk free rate of return of 10% and market return of 18%. Find the required return for the project per CAPM.

6. The P, V, Q, F, I, T and K of a project are as follows:

   P = \$. 300; Investment I = \$. 20,00,000; N = 4 years, K = 10%, T = 30% fixed cost (excluding depreciation) = \$. 15,00,000. The quantity of sales (a) is a sensitive factor with the range 12,000 to 20,000 with most likely value 17000, similarly, variable cost, V, is a sensitive factor with range \$. 130 to \$. 180, with most likely value of \$. 160 per unit perform sensitivity analysis w.r.t. quantity and variable cost.

7. Explain the adjustments called for in computing parent's cash flow and present the concept and significance of APV.

8. Present the technique of assumptions, CML and SML versions of CAPM.

9. A software export house in India has been exporting software to USA. During 2006 its export amounted to \$ 1 mn and it can be continue to maintain this level for next five years. During 2007, the firm opened its US subsidiary at an investment of \$ 2 mn. The expected annual after tax cash flow from the investment is \$ 1.8 mn, inclusive of depreciation as well, for the next 5 years. Find the APV in \$, taking the discount rate at 8% p.a.

10. The US Subsidiary of an Indian firm requires an investment of \$ 244 mn, inclusive of the \$40 mn book cost property used for the project. Blocked funds releasable is \$ 4 mn. Market value of the property is \$ 200 mn. Annual sales for the project \$ 200 mn for next 3 years. Cannibalized exports \$ 20 mn p.a. Newly enabled exports \$ 40 mn p.a. Interest free loan receivable \$ 120 mn, repayable in 3 annual installments of \$ 40 mn beginning 1st year end. Annual tax saving through transfer pricing Rs. 500 mn p.a. Additional management cost Rs. 120 mn for first year, Rs. 340 mn in 2nd year and Rs. 560 for third year. Current exchange rate is Rs./\$ 45. Expected 1st year - end spot rate is Rs. 46/\$, 2nd year - end Rs. 47/\$ and 3rd year - end Rs. 48/\$. Discount rates for trade cash flows is 12%, financial cash flows 10% and tax saving cash flows 15%. Compute the APV, taking economic life of the project as 3 years.

11. **a.** Three projects have their **std. deviations** of their NPV as follows: \$ 800, \$ 1200 and \$ 2000. The correlation coefficients for different pairs are 1&2:

0.6, 1&3: 0.8 and 2&3: -0.5. What is the overall std. deviation of the portfolio of projects? (6 marks)

b. Three firms, namely, A, B & C, are identical in every respect except their capital structure. A is un-levered and its value is $12.5 mn. B and C are levered. The debt capital employed by B was $4mn and by C was $6mn. Corporate tax rate is 30%. Find the values of B and C. (6 marks)

12. The management of a firm is seeking your advice on the acceptability of a project involving an initial investment of $12mn. The following for the next 3 years, being the life of the project, are estimated.

Year	Expected Sales (units)	Expected Selling price	Tax rate	Expected variable cost per unit	Fixed expenses (excluding depreciation)
1	18,000	$2300	30%	$1400	$ 8.2mn
2	20,000	2400	30%	1500	8.2mn
3	16,000	2500	40%	1600	8.4mn

Required:

i. Find the acceptability of the project if cut-off payback period is 3 years.

ii. Ascertain the acceptability of the project taking the discount rate as 12%.

13. A firm is considering replacing a machine purchased three years ago for $ 4,000,000. It has further 5 years of life. The new machine will cost $ 7,500,000 **including installation** charges of $ 500,000. It has a life of 5 years. Increase in working capital is estimated at $ 1,000,000. The profits before tax and depreciation are as follows for the two machines.

Year	**1**	**2**	**3**	**4**	**5**
Current Machine ($)	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
New Machine ($)	2,500,000	3,000,000	3,500,000	5,000,000	5,000,000

The firm adopts fixed installment method of depreciation. Tax corporate tax rate is 40% and capital gain tax is 20% on inflation un-adjusted capital gain.

Required: Is it desirable to replace the current machine by the new one, taking the resale value of old machine at $ 4,500,000 at present? Use IRR technique. **Hint:** For IRR try at 24% and 25% and interpolate.

14. A company employs the certainty equivalent approach in the evaluation of risky investments. The following information of a new project is available. Cost of initial investments is $ 2,400,000. Estimated uncertain Cash inflows and the certainty equivalent coefficients are as follows:

Year	**Amount $**	**Certainty Equivalent Co-efficient**
1	1,920,000	0 .7
2	1,680,000	0 .6
3	1,560,000	0 .5
4	1,440,000	0 .4
5	960,000	0 .3

The risk less rate of interest in the market on government securities is **8%.** The risky rate of return is **24%. Should the project be accepted? Show** all your workings neat.

15. Three mutually inclusive projects, namely, A, B and C involve an outlay of $12mn, $18mn and $30mn, respectively. The estimated rates of return from the projects are 12%, 16% and 20%. The values of standard deviation of returns of the projects are: 5%, 8% and 10% respectively. The correlation coefficients are: between projects: 1&2: **-0.4**, between 2&3: **0** and between 1&3: **0.2**. The projects cannot be split.

Find the portfolio return and risk of the portfolio comprising projects (i) 1 & 2, (ii) 1 & 3 and (iii) 1,2 &3. Show all your workings neat. *Based on return per percent of risk, rank the three* different portfolios.

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UNIT–IV

INTERNATIONAL WORKING CAPITAL AND CASH MANAGEMENT

Learning Objectives: To Know
i. Concept of international working capital management.
ii. Scope of international working capital management.
iii. Determinants of size of working capital.
iv. Approaches to financing working capital.
v. Financing options for working capital.
vi. Concept and scope of cash management, including short term investment management.
vii. Tools of cash management in the context of a MNC such as netting, leading and lagging, transfer pricing, budgeting etc.

Working capital constitutes roughly 30 to 70% of total capital, depending on the nature of the business. Hence management of the same is very important, sometimes more important than management of fixed capital.

1. CONCEPT OF INTERNATIONAL WORKING CAPITAL MANAGEMENT

Working capital is the capital needed for day to day operations like payment for raw-materials, wages, salaries, overheads, etc. Working capital is also called as revolving or rotating capital as the fund is revolved again and again. Business failures due to faulty working capital management are more than due to faulty fixed capital management, because working capital management is a day to day affair with lots of dynamics and uncertainties.

1.1. Concepts

Gross working capital refers to the total current assets of a firm, while net working capital refers to excess of current assets over current liabilities or {Current assets - Current liabilities. Permanent working capital is that part of working capital which is always held by a business, while temporary working capital is held seasonally by businesses to meet the seasonal pulls in demand.

Working capital management in the context of an MNC is called as international working capital management.

1.2. Functions of WCM

Working capital management (WCM) involves planning, execution and control of: (i) Size and acquisition policies of inventory in currents assets to be followed by the MNC parent and its subsidiaries, (ii) Choice and proportion of different sources of capital to be used for funding the inventory of current assets, (iii) Flow cycle of current assets so that there is no pile up of any class of current assets while in another there is a dearth and (iv) Managing the health of individual components of working capital.

International working capital management involves managing the working capital needs of group concerns with a global spread of operations. There will be inter-firm transfers, leads, lags, etc to meet group goals.

2. SCOPE OF WORKING CAPITAL MANAGEMENT

Working capital management covers decisions as to overall size of working capital, the mix of working capital assets, mix of financing of working capital assets and speed of generating cycle.

2.1. Assets Components of Working Capital

The assets components of working capital are presented below:

i. Inventories

Inventories include all investments^ in raw materials, work-in-progress, stores, spare parts and finished goods; they constitute an important part of the current assets. The purchase of inventory involves investment which must be properly controlled. There are many issues of inventory management which must be taken into consideration as fixation of minimum and maximum level, determining the size of inventory to be carried, deciding the issue of pricing policy, setting up the procedures for receipts and inspection, determining the economic order quantity, providing proper storage facilities, keeping control on obsolescence and setting up an effective information system with reference -o inventories. Inventory management requires the attention of stores manager, production manager and financial manager. There must be adequate inventories

in order to avoid the disadvantages of both inadequate and excessive inventories. Excessive inventories involve more carrying costs like rent, capital cost, insurance, obsolescence etc. Inadequate inventories involve more ordering cost, more stock-out cost, consumer satisfaction, uneconomic production - runs, etc. Both inadequacy and excessive inventories must be avoided.

ii. Receivables

Receivables include debtors and bills receivable. Management of receivables involves a trade off between the gains due to additional sales on account of liberal credit facilities and additional cost of recovering those debts. If liberal credit facilities are given to the customers, sales will definitely increase. But on the other hand bad debts, collection expenses and capital cost will increase. Similarly if the credit policy is strict, the sales will be less and customers may go to the competitors where liberal credit facilities are available. This will result in loss of profit because of less sales but there will be saving because of less bad debts, collection and capital cost. Management of receivables also covers analysis of the risks associated with advancing credit to a particular customer. Follow up of debtors and collection is an integral part of Management of sundry debtors.

iii. Marketable (Temporary) Investments

Firms hold temporary investments for surplus cash arising either during seasonal operations or out of sale of long term securities. In most cases the securities are held primarily for precautionary purposes - most firms prefer to rely on bank credit to meet temporary transaction or speculative needs, but to hold some liquid assets to guard against a possible shortage of bank credit. The cash forecast may indicate whether excess cash available is temporary or not. If it is found that excess liquidity will be temporary, the cash should then be invested in marketable but temporary investments. It should be remembered that even if a substantial part of idle cash is invested even though for a short period, the interest earned thereon is significant.

iv. Cash

Management of cash is very important from firm's point of view. There must be balance between the twin objectives of liquidity and cost while managing cash. There must be adequate cash to meet the requirements of all segments of the organization. Excess cash may be costly for the concern as it

will increase the cost in terms of interests etc. less cash may also be harmful to the concern as it will not be able to meet the liabilities at the appropriate time. Thus the requirements of the cash must be estimated properly either by preparing cash flow statements or cash budgets. This will help the management to invest the idle funds remuneratively and shortages, if any, may be met timely by making different arrangements. Therefore, it is necessary that every segment of the organization must have adequate cash in order to meet the requirements of that segment without having surplus balances. Cash management is highly centralized whereby cash inflows and outflows are centrally controlled but in multi-division companies it may be possible to decentralize cash requirements so that every company may have cash for its requirements.

2.2. Liability Components of Working Capital

All short-term capital or current liabilities constitute the liability components of working capital. A short term liability is any liability that matures for repayment within one year. Management of short-term liabilities is very important aspect of working capital, because improper management will deteriorate credit worthiness of the firm and might affect credit rating and enhance the cost of funds for the firm in due course. If the payment of creditors is delayed there is a possibility of saving of some interest but it can be very costly because it will spoil the goodwill of the concern in the market. As far as possible, the credit manager should try to get the liberal credit terms so that payment may be made at the stipulated time. It is better if not more than 50 % of current assets is funded by current liabilities, because the rule of thumb current ratio of 2:1 implies that a maximum of $1 current liability can alone be comfortably serviced by $ 2 of current assets.

3. DETERMINANTS OF WORKING CAPITAL

The level of working capital is influenced by scores of factors. In this section let us examine the influencing factors.

Nature of business is one of the factors. Usually in trading businesses the working capital needs are higher as most of their investment is found concentrated in stock, On the other hand, manufacturing/ processing business need a relatively lower (compared to that of trading business) level of working capital. The terms 'higher' and 'lower' used above are relative and only the

proportion to total assets is meant and not the absolute amounts of current assets. That is, of the total capital employed in the business, a higher or lower, as the case may be, portion is employed in current assets.

Size of business is also an influencing factor. As size increases, an absolute increase in working capital is imminent and vice versa, for any kind of business. Here the size and not the proportion that is stressed.

Credit terms are important factors affecting the size and components of working capital. Consider these:

a. Buy on credit and sell on cash, working capita! is lower

b. Buy on credit and sell on credit, working capital is medium

c. Buy on cash and sell on cash, working capital is medium

d. Buy on cash and sell on credit, working capital is higher.

In institution (i) referred to above it is likely, the firm has more cash and more trade creditors and in situation (iv) it might be having less cash and more trade debtors. Hence the impact of credit terms on size and composition of working capital.

Credit policy influences the working level. A liberal credit policy if adopted more trade debtors would result and when the same is tightened size of debtors gets slim, thus reducing the quantum of working capital;

Credit periods also influence the size and composition of working capital. When longer credit period is allowed to customers as against the one extended to the firm by its suppliers, more working capital is needed and vice versa. In the former case, there will be relatively higher trade debtors and in the latter there will be higher trade creditors.

Collection policy is another influencing factor. A stringent collection policy might not only deter away some credit customers, but also force existing customers to be prompt in setting dues resulting in lower level of working capital. The opposite is true with a liberal collection policy.

Collection procedure does influence the level of working capital. A decentralized collection of dues from customers and centralized payments to suppliers shall reduce the size of working capital. Centralized collections and centralized payments or decentralized collections and decentralized payment would lead to a moderate level of working capital. But with centralized

collections and decentralized payments, the working capital need will be the highest.

Seasonality of production is another influencing factor. Agriculture and food-fruit processing and preservation industries have a seasonal production. During seasons when production activities are in their peak working capital need is high.

Seasonality in supply of raw materials affects the size of working capital. Industries that use raw materials which are available during seasons only, like floor and rice-milling industries have to buy and stock wheat, paddy, etc. They cannot afford to buy these items in a phased way, since either supplies become tardier or prices become higher. From the point of view of quality of materials also, it pays to buy in bulk during the seasons. Hence the high level of working capital needed.

Seasonality of demand for finished goods is yet another factor. In the case of products like umbrella, rain-coats, text books and to some extent some of the consumer durables like textiles, jewellery, etc. the demand is seasonal-climatic and festival. But the production has to be continuous throughout, though the off take is skewed. There happens a pile up of finished goods, resulting in higher working capital.

Trade cycle is another influencing factor. Trade cycle refers to the periodic turns in business opportunities from extremely peak levels, via a slackening to extremely trough levels and from there, via a recovery phase to peak level, thus completing a cycle. There are four phases of a trade cycle. These and their features are:

- boom period: more business, more production, more working capital
- depression period: less business, less production, less working capital
- recession period: slackening business, stock pile-up, more or moderate working capital
- recovery period: recouping business, stock fastly moves, less or moderate working capital

Inflation has a bearing on level of working capital. Under inflationary conditions generally working capital increases, since with rising prices demand reduces resulting in stock pile-up and consequent increase in working capital.

Level of trading is another factor. There are two levels of trading, viz. over trading and under trading. Over trading means the business wants to maximize turnover with inadequate stock level, hastened production cycle and swiftest collection from debtors. Eventually the working capital will be lower. It is no good, however, for the business is starved of its legitimate needs. Under trading is the opposite of over-trading. There is lethargy and overt lags. There results a higher work capital. This is no good either, since the working capital is not effectively utilized. It is wastage of capital.

Length of the manufacturing process is an important factor influencing the level of working capital. The time lapse between feeding of raw material into the machine and obtaining of the finished goods from out of the machine is what is described as the length of the manufacturing process. It is otherwise known as the conversion time. Longer this time period, higher is the volume and value of work-in-process and hence is the working capital and vice-versa.

System of production process is another factor that has a bearing. If capital intensive, high-technology automated system is adopted for production, more investment in fixed assets and less investment is current assets are involved. Also, the conversion time is likely to be lower, resulting in further drop in the level of working capital. On the other hand, if labour intensive technology is adopted less investment in fixed assets and more investment in current assets (especially work-in-progress due to inclusion of an enhanced wage component prolonged processing) result.

Uncertainty of Business conditions influences size of working capital. Greater the uncertainty to play conditions, more working capital is needed and vice-versa.

Infrastructural facilities influence the level of working capital. Sound and dependable infrastructural facilities help reducing working capital, while inefficient facilities add to working capital.

Liquidity preference level influences working capital needed, higher liquidity preference increases working capital requirement and vice-versa.

Prevalence of Just-in-time influences working capital size. If, JIT prevalence is higher, less working capital is needed and vice versa.

Finally **rapidity of turnover** comes. There is a negative correlation between rapidity of turnover and size of working capital. When sales are fast and swift,

lower is the investment in working capital. Actually stock of inventory is very minimum. But when sales are happening far and in-between, that is, rather slow, as in the case of textiles during off season, elaborate investment in working capital results due to stock build up. Thus faster sales lead to lower working capital and vice versa.

4. APPROACHES TO FINANCING WORKING CAPITAL

There are basically three approaches to financing working capital. These are: The hedging approach, the conservative approach and the aggressive approach.

i. Hedging Approach

Hedging approach uses long-term capital to fund permanent working capital and short-term capital to fund temporary working capital. It could be seen from chart 5.1, that as varying working rises short-term funding also rises and as the former falls, the latter also declines. Thus, there is match. Also, as permanent working capital is funded through fixed or long-term capital, there is also a match. Hence this approach is also called 'matching approach'. Age of assets is matched to age of funds, balanced use of short term and long term capital is involved here.

ii. Conservative Approach

Under conservative approach the dependence on short-term capital is reduced to fund only a part of temporary working capital. As a precautionary approach to ward off contingencies of paucity of finance for working capital needs, long term capital is used to fund the whole of permanent working capital and also a part of temporary working capital. This approach leads to idle funds occasionally. Hence it costs more. So profitability is low. Of course, there is reduced risk. This approach involves using more long term capital and less short term capital. There is no balanced use of liabilities.

iii. Aggressive Approach

Aggressive approach uses, more short-term funds and relatively less long-term funds. It is opposite of the conservative approach. Here, short-term capital finances whole of temporary working capital and also a part of permanent working capital. Thus dependence on long term working capital is reduced

incidentally. This is riskier. This is done when short term capital is inexpensive ' against long term capital. As risk is these, probability of rising profitability is also there. There is no balanced use of liabilities. This leads to increased risk.

iv. Risk - Return trade off under the 3 approaches

The management has to decide which approach it wants to adopt. The essential difference between conservative and aggressive approach is: The former uses long term funds not only to finance permanent current assets, but also a part of temporary current assets, while the latter uses short term funds to finance a part of permanent current assets. Risk preferences of management shall decide the approach to be adopted. The risk-neutral will adopt the hedging approach, the risk averse the conservative approach and the risk seekers will adopt the aggressive approach.

The following chart gives a summary of the relative costs and benefits of the three different approaches:

Factors	**Conservative**	**Aggressive**	**Hedging**
Return (Liquidity)	More	Less	Moderate
Return (Profitability)	Less	More	Moderate
Risk	Less	More	Moderate

Thus management of working capital is concerned with determining the investment needed and deciding the financing pattern. You would now know that the latter function, i.e. deciding the financing pattern is essentially determining the size and composition of current liabilities in relation to those of current assets. Cost of different types of funds (the long-term and short-term funds), the return on different type of current assets, ability to bear risk of becoming short on liquidity levels, etc. have to be considered.

5. FINANCING OPTIONS IN WORKING CAPITAL

Sources of working capital are many. There are both external or internal sources. The external sources are both short-term and long-term. Trade credit, commercial banks, finance companies, indigenous bankers, public deposits, advances from customers, accrual accounts, loans and advances from directors

and group companies etc. are external short-term sources. Companies can also issue debentures and invite public deposits for working capital which are external long term sources. Equity funds may also be used for working capital. A brief discussion of each source is attempted below:

Trade credit is a short term credit facility extended by suppliers of raw materials and other suppliers. It is a common source. It is an important source. Either open account credit or bill acceptance credit may be adopted. In the former as per business custom credit is extended to the buyer, the buyer is not signing any debt instrument as such. The invoice is the basis document. In the acceptance credit system a bill of exchange is drawn on the buyer who accepts and returns the same. The bill of exchange evidences the debt. Trade credit is an informal and readily available credit facility. It is unsecured. It is flexible too; that is advance retirement or extension of credit period can be negotiated. Trade credit might be costlier as the supplier may inflate the price to account for the loss of interest for delayed payment.

Commercial banks are the next important source of working capital finance. Straight loans, cash credits, hypothecation loans, pledge loans, overdrafts and bill purchase and discounting are the principal forms of working capital finance provided by commercial banks. Straight loans are given with or without security. A one time lump sum payment is made, while repayments may be periodical or one time. Cash credit is an arrangement by which the customers (business concerns) are given borrowing facility up to certain limit, the limit being subjected to examination and revision year after year. Interest is charged on actual borrowings, though a commitment charge for utilization may be charged. Hypothecation advance is granted on the hypothecation of stock or other asset. It is secured loan. The borrower can deal with the goods. Pledge loans are made against physical deposit of security in the bank's custody. Here the borrower cannot deal with the goods until the loan is settled. Overdraft facility is given to current amount holding customers to overdraw the account up to certain limit. It is a very common form of extending working capital assistance. Bill financing by purchasing or discounting bills of exchange is another common form of financing.

Finance companies abound. They provide services almost similar to banks, though not they are banks. They provide need based loans and sometimes

arrange loans from others for customers. Interest rate is higher. But timely assistance may be obtained.

In some countries **indigenous bankers** also abound and provide financial assistance to small business and trades. They charge exorbitant rates of interest. But very much understanding exists between borrower and financier.

Public deposits are unsecured deposits raised by businesses for periods exceeding a year but not more than 3 years by manufacturing concerns and not more than 5 years by non-banking finance companies. Quantity restriction, placed at 25% of paid up capital + free reserves for deposits solicited from public is prescribed for non-banking manufacturing concerns in India. The rate of interest ceiling is also fixed. This form of working capital financing is resorted to by well established companies.

Advance from customers are normally demanded by producers of costly goods at the time of accepting orders for supply of goods. Contractors might also demand advance from customers. Where the seller's markets prevail, advances from customers may be insisted. In certain cases to ensure performance of contract an advance may be insisted.

Accrual accounts are simply outstanding dues to workers, suppliers of overhead services and the like. Outstanding wages, taxes due, dividend provision, etc are accrual accounts providing working capital finance for short period on a regular basis.

Loans from directors, loans from group companies etc. constitute another source of working capital. Cash rich companies lend to liquidity crunch companies of the group, inter-corporate loans are an important form of short term financing.

Commercial papers are usance promissory notes negotiable by endorsement and delivery. There are restrictive conditions as to issue of commercial papers. Only big and sound companies generally float Commercial Papers. Euro Commercial papers are very much popular these days.

Debentures and equity fund can be issued to finance working capital so that the permanent working capital can be matchingly financed through long term funds.

Euronotes can be another source of funds. Euronotes are short term notes floated in countries other than the country in whose currency the same are denominated. Euronotes can also be called as Euro-commercial paper. Euronotes are longer term relative to commercial papers.

6. CONCEPT AND SCOPE OF CASH MANAGEMENT

Cash management involves matching cash flows -inflows and outflows both as to quantity and maturity. But such matching can be anything, but perfect. So, occasional surplus and shortage in cash level is quite possible. Surplus cash must be invested and financing of cash shortage must be arranged. Thus, managing investment of surplus cash and arranging funds to meet shortage are the goals of cash management. Also, bringing the company's cash resources within control as quickly and efficiently as possible so that shortages are quickly reversed is a goal of cash management. Achieving an optimum conservation and utilization of these funds are vital functions of cash management. In the international business context, financing shortages and investing surplus, both involve a diversity of currencies. Traditionally cash management needs managing interest rate risk as well. In MNCs context besides interest rate risk, exchange rate risk is also involved.

6.1 Cash Management Functions

Cash management or liquidity management is an essential component function of efficient working capital management. Cash gives liquidity, but takes away profitability as idle cash does not generate any return. So cash level should be neither too high leading to loss of income nor too low leading to loss of liquidity. Cash is a barren asset and that it must not be held more than the just required level. At the same time illiquidity should not harm the business and halt the operations.

Cash management functions are almost identical in the domestic and international market. The key areas are (i) Organization for cash management, (ii) Collection and disbursement of funds, (iii) Netting of inter-affiliate payments, (iv) Investment of excess funds, (v) Cash planning and budgeting to identify the times and levels of excess or under liquidity and (vi) Managing relations with bankers and other financiers.

6.2 Organization

Should an MNC go for centralized or decentralized cash management is a basic question relating to the organization of cash management function. Centralized cash management has certain advantages. These are:

i) the corporation can operate with less cash balance;
ii) pools of excess liquidity are absorbed and eliminated;
iii) only transaction balances are held;
iv) profitability is enhanced as total cash balance held is less and opportunity of cost of cash balance is minimized;
v) the central corporate office will have a holistic view on cash management increasing synergy of the organization;
vi) cash forecasting can be effectively done;
vii) by increasing the volume of foreign exchange and other transactions done through the head quarters, banks can provide better forex quotes and better service;
viii) the advantage of specialization of liquidity and portfolio management is available;
ix) in the event of expropriation nothing or less will be lost as branch balances are minimum.
x) cash management can be interacted with other functions.

There is a great need for centralized cash management. Currency and interest rate volatility need for pooling resources in view of ever rising demand for capital, increasing complexity and emphasis on profitability demand centralized cash environment.

Decentralized cash management gives leeway to every subsidiary and this may enhance competitive efficiency enhancement amongst subsidiaries for the benefit of the group. There will be flexibility too. But generally, cash management is a centralized function.

6.3 Collection and Disbursement

Speeding up collections is a predominant consideration. Minimizing process float and mail float at different levels is resorted to. This is done by

choosing the most efficient way of coilection and informing the customers the procedures to be adopted in sending remittances.

Cable remittances help in minimizing delays in receipt of payments and in conversion of payments into cash. So customers are directed to transmit funds through wire-telex. The vagaries of mail are they done away with. Better cash planning is ensured thus.

Alternatively customers may be asked to send remittances to 'mobilization centres' which are centrally located in regions with larger concentration of credit accounts. Asian consumers may be directed to send cash remittances to Singapore where the MNCs specialist treasurer arranges for optimal utilization of funds, European customers to send cash remittances to London mobilization centre and so on.

Customers may be asked to send remittances directly to the banks with which the MNC is having account. Otherwise they may be advised to send remittances to a designated 'lock box' which is a postal box in the company's name. Local bank will clear the box frequently in a day and collections are recorded.

6.4 Same-day-value

Electronic banking and world-wide telecommunication system enable rapid collection of cheques and drafts. Treasury work station software packages are available now which interface the company with its bank and branch offices and an MNC can know its world-wide cash position on an on-line basis. A transaction booked in Bombay is simultaneously recorded in Singapore and other places too.

Centralized disbursement is practiced to enjoy maximum float advantage. But, if the payee is smart enough he can adopt all the above and more measures of speeding up his collections.

6.5 Investment of Surplus Cash and management of short-term investments

How much cash balance and in what currency combination the same be held and how much be invested are important questions. Optimum cash balance is determined based on cash management models and firm specific factors. Once the size of surplus is established its investment assumes importance. Investment

opportunities in various countries, tax laws on short term capital gains, the market structure and efficiency, etc., are the factors to be considered. Surplus cash is shifted across national borders to earn the highest-risk-adjusted return, net of currency conversion cost. Thus, besides risk adjusted yield differential, transaction cost must be taken into account. MNC's hold cash balance in several currencies, because of the conversion cost involved. It is better to invest surplus in the same currency area, since conversion costs may eat up interest rate differential in a different currency area.

Short-term investments must be invested in liquid securities with adequate safety and of course sacrificing return to some extent.

6.6. Choice short term investment securities

The choice investment vehicles are money market securities only. Treasury Bills, Certificate of deposits, Commercial Paper, Banker's Acceptances, Eurodollar Deposits, Reverse Repos, Federal Funds, Broker's call, Money at call and short notice. Vibrant secondary market exits for most ensuring liquidity. Returns vary depending on the risk. The government securities generally yield low return.

i. Treasury Bills: Government issues – **Short term;** 91 day, 182 day bills issued weekly and 52 week issued monthly- **Highly secured**– **Issued at a discount** to face value - At maturity Government pays face value- The difference between purchase price and selling/ face value is the return- **Low return** – Competitive bid or noncompetitive bid to buy when government issues – More liquidity with active secondary market.

ii. Certificate of deposits: In the USA, Time deposits with banks for **Short or long term** in denominations of $100,000 are available. These are negotiable and have higher liquidity. Treated by FDIC as deposit in a bank so have insurance up to $100,000.

Certificate of deposit is a certificate issued by a bank evidencing receipt of money and carries the bank's guarantee for the repayment of principal and interest.

Certificates of deposits are negotiable instruments and are issued payable to bearer and are traded in the secondary market. The certificate of deposits are issued for a minimum denomination of U.S. dollar 50,000/- and for a maximum period, generally of 1 year.

Certificates of deposits provide an excellent avenue to the investors in Eurocurrency market who would like to park their surplus in a high interest instrument with liquidity. For example if an investor say bank surplus fund which it would like to invest for a period of say 3 months it can buy a C.D. for 3 months. If need be, the bank can sell the C.D. in the secondary market and liquidate it.

Types of Certificates of Deposits

Straight or Top CDs: These are certificates of deposits with a fixed rate of interest and a fixed date of maturity (Generally 1-12 months). The interest is fixed in terms of LIBOR and interest rate depends on the standing of the issuing bank and liquidity position in the market.

Floating Rate CDs: These are certificates of deposits which are issued with the interest rate linked to the LIBOR rate and are normally issued for a period of maximum of 3 years. Interest rate is reviewed at predetermined periodicity say every six months and adjusted in line with the base rate (i.e.) LIBOR rate.

Discount CDs: These are issued at a discount and are paid at maturity for the face value, the difference between the issue price and face value representing the interest.

Tranche CDs: A Tranche CD is a share in a programme of CD issues by a bank upto a predetermined level. Each Tranche CD carries the same rate of interest and matures on the same date.

They are normally placed directly with the investors and they represent short term bonds. These CDs are issued with maturities upto 5 years.

iii. Commercial Paper: *Maturity maximum 270 days* – Issued by high rated corporate bodies at a discount to face value - The difference between purchase price and selling/ face value is the return- High Safety; Low return . More liquidity with active secondary market.

iv. Banker's Acceptances: An order by a bank customer to the bank to a certain sum to a stated party. When the bank accepts the order and the instrument is stamped 'accepted', it becomes live and can be traded in secondary markets as well. The difference between purchase price and selling/ face value is the return. More Safety. Low return. More liquidity with active secondary market

v. Eurodollar Deposits: Dollar deposits outside the USA with US or non USD banks. A higher deposit rate is normally got. Now the instrument is called external currency deposits. That is any currency deposits outside the national boundary of that currency.

vi. Reverse Repos: Reverse Repos are buying the securities (investment) with undertaking to sell (disinvestment) the next day. High liquidity and safety– Low return.

vii. Federal Funds or shortly, Fed funds: Deposits with the federal reserve by commercial banks and others who are members of the federal reserve system. Safe with Low return- The prevailing interest rate is considered as a barometer of the money market rates.

viii. Broker's call: Lending to stock brokers on the security of stock bought by a banker, with repayment on call by the banker. The interest rate is 1% point more than T-bill rate.

6.7 Portfolio Management

It is better a portfolio approach is followed optimizing diversification for lower risk, given the return.

6.7.1 Computation of Portfolio Return = R_p. Portfolio of investments is a collection of investments. Instead of putting all money in one security you may put it in more than one security and get a portfolio of investments. A portfolio gives more stable return than just one security and a portfolio well diversified gives more stable return than a less diversified portfolio.

Portfolio Return = $R_p = \Sigma W_iR_i$, where W_i s are weights or proportions of respective investments and R_i s are returns of the securities.

Suppose you have a portfolio having 3 securities, 1, 2 and 3 with weightage 0.4, 0.1 and 0.5. Supposing the returns of the securities be: 16%, 10% and 18%. If we expand the formula ΣW_iR_i , with i= 3, we get $W_1R_1 + W_2R_2 + W_3R_3$ and $W_1 = 0.4$ $R_1 = 16\%$, $W_2 = 0.1$, $R_2 = 10\%$, $W_3 = 0.5$ and $R_3 = 18\%$. The portfolio return is: (0.4 x 16%) + (0.1 x 10%) + (0.5 x 18%) = 6.4% + 1% + 9% = 16.4%.

6.7.2 Computation of Portfolio Risk = S_p or σ_p. Portfolio risk is the fluctuation in portfolio return. Given portfolio return for several periods we can get the Standard deviation, Variance and Coefficient of Variation of the returns and the risk is computed thus. Alternatively, given the risk, proportion and coefficient of correlation of different securities in the portfolio we can get as follows:

S_p or $\sigma_p = [\Sigma \Sigma W_i W_j \rho_{ij}\sigma_i\sigma_j]^{1/2}$, where W_i & W_j are proportionate weights, ρ_{ij} is correlation coefficient of returns of pairs of securities in the portfolio and σ_i & σ_j are standard deviation of returns of individual securities in the portfolio. This method is widely followed.

Suppose you have a portfolio having 3 securities, 1, 2 and 3, with weightage 0.4, 0.1 and 0.5 , with std. deviation, 4%, 6% and 1%. The correlation between 1&2 i.e. $\rho_{12} = 0.5$, $\rho_{13} = -0.5$ and $\rho_{23} = 0$. Then we can compute the S_p or σ_p. Since the number of securities is 3 and we have to take 2 at a time to make pairs and self-pairing is also involved we get the expanded formula:

$[W_1W_1\, \rho_{11}\sigma_1\sigma_1 + W_1W_2\, \rho_{12}\sigma_1\sigma_2 + W_1W_3\, \rho_{13}\sigma_1\sigma_3 + W_2W_1\, \rho_{21}\sigma_2\sigma_1 + W_2W_2\, \rho_{22}\sigma_2\sigma_2 + W_2W_3\, \rho_{23}\sigma_2\sigma_3 + W_3W_1\rho_{31}\sigma_3\sigma_1 + W_3W_2\, \rho_{32}\sigma_3\sigma_2 + W_3W_3\rho_{33}\sigma_3\sigma_3]^{1/2}$.

Here, $W_1 = 0.4$, $W_2 = 0.1$ and $W_3 = 0.5$; $\sigma_1 = 4$, $\sigma_2 = 6$ and $\sigma_3 = 1$; $\rho_{12} = \rho_{21} = 0.5$, $\rho_{13} = \rho_{31} = -0.5$ and $\rho_{23} = \rho_{32} = 0$. And $\rho_{11} = \rho_{22} = \rho_{33} = 1$ as these are self-correlation coefficients. We can now simplify the formula as: $[W_1^2\,\sigma_1^2 + W_2^2\sigma_2^2 + W_3^2\sigma_3^2 + 2W_1W_2\,\rho_{12}\sigma_1\sigma_2 + 2W_2W_3\,\rho_{23}\sigma_2\sigma_3 + 2W_1W_3\,\rho_{13}\sigma_1\sigma_3]^{1/2}$.

Now put the numerical values of each of the variables and get the value of S_p or σ_p.

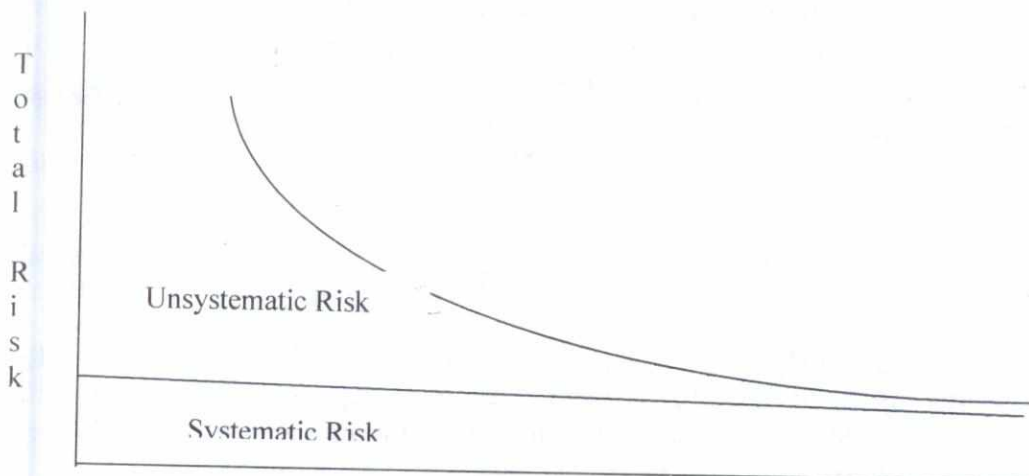
$[(0.4^2 \times 4^2) + (0.1^2 \times 6^2) + (0.5^2 \times 1^2) + (2 \times 0.4 \times 0.1 \times 0.5 \times 4 \times 6) + (2 \times 0.1 \times 0.5 \times 0 \times 6 \times 1) + (2 \times 0.4 \times 0.5 \times -0.5 \times 4 \times 1)]^{1/2} = [(2.56) + (0.36) + (0.25) + (0.96) + (0) + (-0.8)]^{1/2} = [3.33]^{1/2} = 1.82$.

Thus the portfolio std. deviation is 1.82. Supposing the returns of the securities be: 16%, 10% and 18%, the portfolio return is: (0.4 x 16%) + (0.1 x 10%) + (0.5 x 18%) = 6.4% + 1% + 9% = 16.4%.

6.7.3 Systematic or un-diversifiable risk and non-systematic or diversifiable risk: The risk that affects all securities, all firms, all industries and whole economy is called systematic risk. It is caused by macro factors like fiscal

policy, monetary policy, foreign exchange crisis, major political happenings, etc. No one firm or industry can escape the systematic risk hence it is called the un-diversifiable risk. The non-systematic risk affects specific firms/industries/ regions and the like and caused by factors such bad management, labor unrest, technological change affecting an industry, not all and so on. An investor can avoid fluctuation in his portfolio return by excluding these firms/industries that are suffering from some special risk. Hence the non-systematic risk is also known as diversifiable risk.

Graph: 1 Systematic or un-diversifiable risk and non-systematic or diversifiable risk



Number of Securities

6.7.4. Uniqueness of portfolios and opportunity set of portfolios: No two portfolios will have same return and same risk. That is each portfolio is unique in its return and risk and hence can be addressed by the risk and return. Any portfolio can be depicted on a two dimensional graph, X-axis taking portfolio std. deviation and Y- axis giving portfolio return. Graph 2 gives the diagram. Each dot in the diagram represents a portfolio. The diagram has one side smoothly curved and others irregular. The smooth side of the diagram, AB, is called the efficient frontier of portfolios as it includes all efficient portfolios. An efficient portfolio is one which gives same return for least risk or highest return for same risk. Take any point on AB, say K. Draw a horizontal line, KN, to the

other edge of the diagram. All dots on this line represent different portfolios. But, of all these portfolios, portfolio K is the best as it gives same return as other portfolios on the line KN, for the least risk. From K draw a parallel line, KT to Y axis, down up to the bottom edge of the diagram. The line KT consists of several portfolios. Of all the portfolios on line KT, portfolio K is the most efficient as it gives highest return for the same risk.

Similarly we can prove that all portfolios on the smooth curve, AB, are most efficient. So an investor must choose a portfolio from those on the efficient frontier. Here, come the risk-return preferences of individual investors. High risk seeking investor will prefer a portfolio in the upper segment of the efficient frontier. Moderate risk seeking investor will prefer a portfolio in the middle segment of the efficient frontier. Low risk seeking investor will prefer a portfolio in the lower segment of the efficient frontier.

The efficient frontier cannot have dent or dents. The lowest point in the efficient frontier, which is A, means portfolio with least risk and least return. There could be no other portfolio equivalent to this. Every successive point from A in the efficient frontier AB, means a portfolio with higher return with higher risk than portfolios represented by lower points relative to that. The highest point in the efficient frontier, B, represents portfolio with highest return and highest risk. There could be no other portfolio equivalent to this.

6.7.5. Portfolio selection: There are two methods of portfolio selection. **Harry Markowitz approach and William Sharpe approach.**

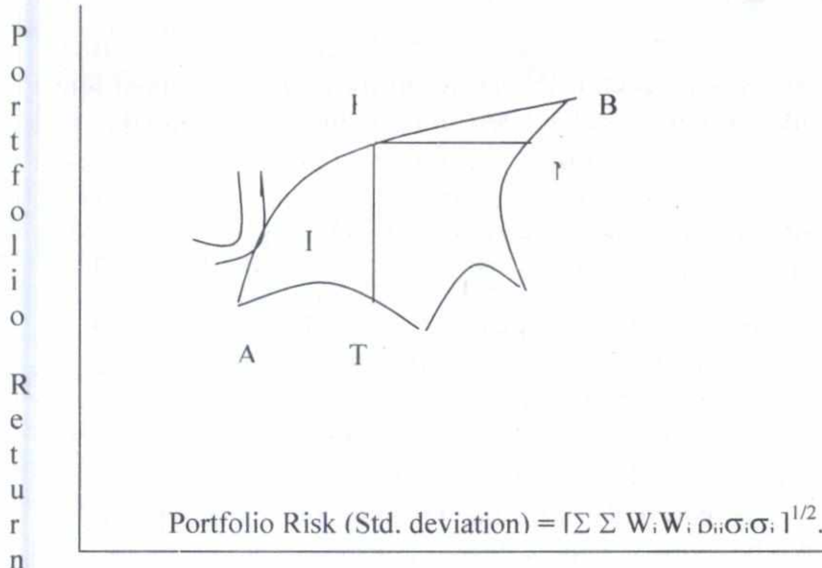
i. Harry Markowitz Approach: This approach uses Efficient Frontier and Risk-return indifference curves of individual investors to select the right portfolio for an investor with a set of indifference curves.

The risk-return preferences are depicted by the risk-return indifference curves of individual investors. For any investor a set of such curves will be framed and the portfolio choice is based on the tangential point of any one of the indifference curves to the efficient frontier. In the chart for an investor the indifference curves are drawn and one such curve goes tangential to the efficient frontier at point **L**. So, **L** is the choice portfolio. Similarly for any investor portfolio choice can be affected.

Limitations of Markowitz model: Markowitz modeling has limitations as it considered only risky securities, though there are risk free investments also.

Further the computation of portfolio risk becomes a tedious job when there are many securities, as portfolio standard deviation is the measure of risk followed. Besides we need to know the correlation coefficients of returns of pairs of securities.

Graph 2: Portfolio Choice–Diagrammatic presentation : Markowitz Model



ii. William Sharpe Modeling: William Sharpe version of portfolio selection is based on efficient frontier, risk-free investment and representative portfolio. There is no need for data on correlation coefficients between returns of pairs of securities.

Risk free investment is one where no risk is involved. The return from this is called, risk-free return, $\mathbf{R_f}$ .The risk-free investment could be Govt. securities or deposits with first class bankers.

Market portfolio: Market portfolio is a portfolio representing the whole market of investment. A surrogate for this is the portfolio of securities in a popular stock price index. The NASDAQ and Dow Jones of the USA, Nikkei of Japan, BSE sensitivity index or NSE index of India, MSM index of Oman, FTSE of London, etc are popular indices of the respective countries representing the respective investment market.

Return on the market portfolio is obtained from index figures. For example, say the closing index values on November 12 and 13, 2006 in a particular stock index be 6650 and 6783. The return on the market portfolio based on the index for November 13, 2006= (13^{th} Closing index value - 12^{th} Closing index value)/ 12^{th} Closing index value. That is: (6783-6650)/6650= 133/6650= 0.02= 2%. This way if consecutive daily closing price indices are available, daily returns can be worked out for the market portfolio the same way individual securities returns are got from price date of securities.

In the Sharpe modeling, the market portfolio is got by drawing a line tangential to the efficient frontier from the risk free return. The tangential point is the Market portfolio, M. See Graph 3.

Lending portfolios: An investor can put part of his money in risk-free investment and the rest in M and his portfolio return will be more than risk-free return, but less than market portfolio return, R_m and less risk than the market. Such portfolios are called lending portfolios as these in effect mean that the investor has lent some money at risk-free return.

Alternatively you can put all money in market portfolio and get return equal to R_m and risk equal to market risk.

Leveraged portfolios: Risk seeking investors can borrow at risk-free return and invest own and borrowed funds together in market portfolio and in the process can beat the market making a return higher than the market return, R_m and risk also higher than market portfolio. Such portfolios are called leveraged portfolios.

Let $R_m = 14\%$ and $R_f = 6\%$. Std. Deviation of market portfolio is 4%.

One investor invests $5 million at R_f of his money and balance $10mn of his money in market portfolio. What is his return and risk?

His total investment =$15mn.

His total investment income = [$5mn x R_f] + [$10mn x R_m]

= [$5mn x .06] + [$10mn x .14]

= $.3mn + $1.4mn = $1.7 mn.

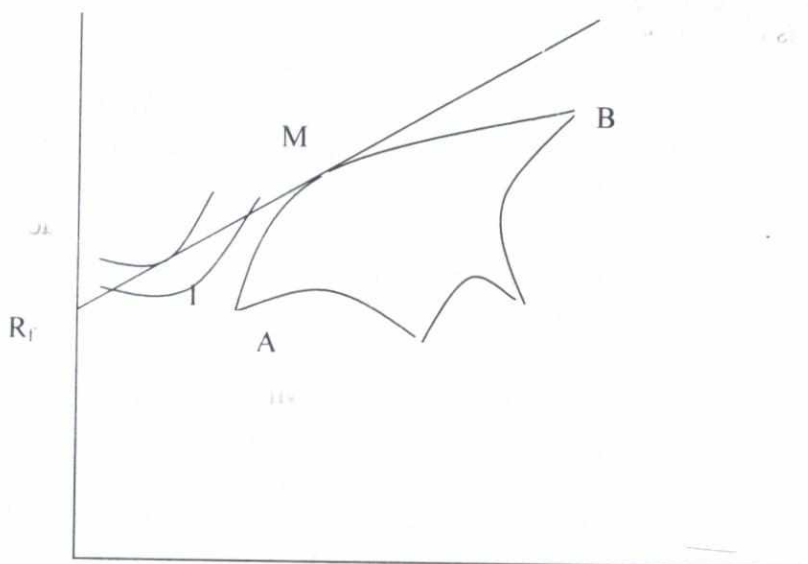
Overall return = Total investment income / Total investment

= $1.7 / $15 = 0.1133 =11.33%.

Portfolio Risk = S_p or $\sigma_p = [\Sigma \Sigma W_i W_j \rho_{ij} \sigma_i \sigma_j]^{1/2}$

With two investments, $\sigma_p = [W_1^2 \rho_{11} \sigma_1^2 + W_2^2 \rho_{22} \sigma_2^2 + 2W_1 W_2 \rho_{12} \sigma_1 \sigma_2]^{1/2}$

Graph 3: Portfolio Choice–Diagrammatic presentation: William Sharpe Model



Portfolio Risk = σ in the case CML or β in the case of SML

i. Computation of Return and Risk of a Lending portfolio:

The subscript 1 refers to risk-free investment and subscript 2 the market portfolio, ρ_{11} and ρ_{22} are self correlation coefficients = 1. $\sigma_1 = 0$ as this is S.D of risk-free investment. So the above equation of portfolio risk reduces to:

$$\sigma_p = [0 + W_2^2 \sigma_2^2 + 0]^{1/2}$$

With W2 = 2/3 and σ_2= 4%, $\sigma_p = [(2/3)^2 (4)^2]^{1/2} = [(4/9)(16)]^{1/2} = (64/9)^{1/2}$ = 2.67%.

Portfolio Return = 11.33%. This is in between R_f and R_m	Portfolio S.D = 2.67%. This is less than market risk.
This portfolio thus suits a risk-averse investor.	

ii. Computation of Return and Risk of a Leveraged portfolio:

Let R_m = 14% and R_f = 6%. Std. Deviation of market portfolio is 4%.

One investor borrows $5 million at R_f and invests this with his own money $10mn in market portfolio. What is the portfolio return and risk?

His total investment =$15mn.

His total investment income = $15mn x R_m = $15mn x 14% = $2.1mn.

Out of this he has to pay interest on borrowed sum = $5mn x 7% =$0.35mn.

So, his net income = $2.1mn minus 0.35mn = $1.75mn.

The investor's own capital is only $10mn. On this he has made $1.75mn.

So the percent of return on investment is= ($1.75 x 100)/$10mn=17.5%.

This is greater than market return. Of course, risk also is more than the market risk.

W_2 = Investment in Market portfolio / Own capital = $15mn/$10mn =3/2.

Given σ_2= 4%.

$$\sigma_p = [0 + W_2^2 \sigma_2^2 + 0]^{1/2} = [(3/2)^2 (4)^2]^{1/2} = [(9/4)(16)]^{1/2} = (144/4)^{1/2} = 6\%.$$

Portfolio Return = 17.5 This is greater than R_m	Portfolio S.D = 6%. This is greater than market risk = σ_m = 4%
This portfolio thus suits a risk-seeking investor.	

Markowitz and Sharpe models – A comparison:

The return is more in Sharpe model than the return possible under Markowitz model for any given risk level, except when all money is put only in Market portfolio. This is the superiority of Sharpe Model.

The tangential line is called *capital market line*, full of efficient portfolios to choose from.

Less data are needed in Sharpe model. No data of correlation coefficient are required.

Portfolio selection:

Now the risk-return preferences of individual investors need to be invoked. High risk seeking investor will prefer a portfolio in the upper segment of the capital market line. Moderate risk seeking investor will prefer a portfolio in the middle segment of the capital market line, or more particularly the market portfolio itself. Low risk seeking investor will prefer a portfolio in the lower

segment of the capital market line. The risk-return preferences are depicted by the risk-return indifference curves of individual investors. For any investor a set of such curves will be framed and the portfolio choice is based on the tangential point of any one of the indifference curves to the capital market line.

In graphs 2 and 3, an investor's an indifference curve goes tangential to the efficient frontier or the capital market line at point L. So, L is the choice portfolio. Similarly for any investor portfolio choice can be made. This type of portfolio choice making is developed William Sharpe. Hence the model is called Sharpe Model of portfolio selection. Modern capital market theory is based on this theory. Investment management thus involves constructing and choosing portfolios.

6.7.6. Executing the choice portfolio

Having decided about the portfolio needed, the investor has to now buy the securities. If the investor decides to invest all money in the market portfolio, he has to buy the securities in the market portfolio in the same proportion as the market portfolio is constructed.

If the investor decides to invest part of the money in risk-free investment and the rest of the money in the market portfolio, he has to buy the risk-free investment for part of the money as decided and the balance will be used to buy the securities in the market portfolio in the same proportion as the market portfolio is constructed.

If the investor decides to borrow and invest the borrowed money as well as own money in the market portfolio, so as to beat the market, he has to buy the securities in the market portfolio in the same proportion as the market portfolio is constructed for whole of the money. The investor has to contact stock brokers for buying the investments.

Constraints:

- Minimum market lot size might make security weight composition getting changed.
- Market uncertainties might make timing the investment difficult.
- Though we have assumed that an investor can borrow at the risk free rate, seldom this takes place. His borrowing rate will be higher than the risk-free rate.

6.7.7. Concept of portfolio evaluation

Evaluation of portfolio performance facilitates the investors to appraise how well the portfolio has done in achieving desired return targets and how well risk has been controlled in the process. It enables the investors to assess how well the portfolio has achieved in comparison with others in the same business with similar interests. Finally it provides for a mechanism for identifying weaknesses in the investment process and for improving these deficient areas. Nevertheless, historical performance evaluation can serve as the starting point for estimating future prospects and can serve as a feed back mechanism for improving the ongoing portfolio management process.

The portfolio manager is required to make proper diversification into different industries, asset classes and instruments so as to reduce the unsystematic risk to the minimum for a given level of return. The market related risk has to be managed by a proper selection of Beta for the securities. There was no composite index which measured both return and risk under the Traditional Theory.

Composite measures of both Return and Risk: In Modern Portfolio Theory it became necessary to develop some composite measures of both return and risk in portfolio performance, as the objective now is maximization of return and minimization of risk. On account of the trade off between them, simple maximization of returns or single goal of minimization of risk will be defeating the objectives of Modern Portfolio Management.

It was in this context that later investment researchers have tried to evolve a composite index to measure risk based returns taking into account the different components of risk, viz., total risk, systematic, and unsystematic or residual risk. The credit for evolving these criteria goes to Sharpe, Treynor, Jensen, Modigliani and others.

Different measures of performance of portfolio:

i. Sharpe's Measure: Sharpe's Measure is Sharpe Index = $S.I = (R_i - R_f) / S_i$, where, R_i is return on the fund, R_f is risk free return and S_i is standard deviation of return of the fund. It measures total risk premium earned for a unit of total risk measured by standard deviation. Excess of return on the portfolio over risk free return is the risk premium and it is the numerator. Total risk, standard deviation of its return, is the denominator. A fund with higher SI figure is better

performer as per the Sharpe's measure than others with lower SI. Take the following example:

Portfolio	*Average Return*	*S.D.*	*R_f (Risk Free Rate)*
A	20%	4%	10%
B	24%	8%	10%

By applying the above formula, we have:

$$SI_A = \frac{0.20-0.10}{0.04} = \frac{0.10}{0.04} = 2.50 \quad ;$$

$$SI_B = \frac{0.24-0.10}{0.08} = \frac{0.14}{0.08} = 1.75$$

Portfolio A is a better performer than B.

ii. Treynor's Measure : The Treynor's measure measures risk premium earned per unit of the systematic risk, i.e., beta.. The equation is : $T = (R_i - R_f) / \beta_i$ where, T = Treynor's measure of evaluation, R_i = Return on the portfolio R_f = Risk free rate β_i = Beta of the portfolio as a measure of systematic risk.

Illustration

Portfolio	*Return*	*β_i*	*R_f*
A	20%	0.5	10%
B	24%	1.0	10%

$$T_A = \frac{0.20-0.10}{0.5} = \frac{0.10}{0.5} = 0.2 \quad ; \quad T_B = \frac{0.24-0.10}{1.0} = 0.14$$

Portfolio 'A' performs better than portfolio B, as $T_A > T_B$. The numerator in Treynor's formula is the reward, measured by risk premium or excess return and denominator is volatility as measured by Beta coefficient. The Treynor and Sharpe Indexes provide measures for ranking the relative performances of various portfolios, on a risk-adjusted basis.

iii. Jensen's Measure: Jensen's measure computes excess return. For that expected return has to be computed as follows:

$$E(R_{jt}) = R_{ft} + B_{jt}\ (R_{mt} - R_{ft})$$

$E(R_{jt})$	=	Expected return on portfolio 'j' for period 't'
R_{ft}	=	Risk free rate of return for period 't'
B_j	=	Systematic risk measure
R_{mt}	=	Average return on the market portfolio for period 't'

The Jensen's approach can be illustrated by an example. The data on portfolio results, Beta of the portfolios and Market index results are set out as follows:

Portfolio	*Return as Portfolio*	*Portfolio Beta*
1	18%	1.2
2	15%	0.8
3	21%	1.5
Market Index	16%	1.0

Market Beta is always equal to 1.0 and let the Risk Free Rate be 10%.

The return on 3 portfolios on the basis of CAPM are as follows:

$E(R_p) = R_f + (R_m - R_f) B_p$

(1) Portfolio I = 10 + (16 – 10) x 1.2 = 17.2%

(2) Portfolio II = 10 + (16 –10) x 0.8 = 14.8%

(3) Portfolio III = 10 + (16 – 10) x 1.5 = 19 %

Excess Return = Expected Return – Actual Return

Portfolio I = 18 – 17.2 = 0.8%

Portfolio II = 15 – 14.8 = 0.2%

Portfolio III = 21 – 19.0 = 2.0%

The 3rd portfolio is the best with higher excess return.

iv. M² Method: This method was developed by Modigliani and Modigliani, hence called **M²**. It equates the volatility of the managed portfolio with the market by creating a hypothetical portfolio made up of T-bills and the managed portfolio. If the risk of hypothesized portfolio is lower than the market, leverage is used, that is borrowing at Treasury rate and investing that fund also in the managed portfolio. If risk is of hypothesized portfolio is higher than the market, lending portfolio, that is investing at Treasury rate and in the managed portfolio is involved and the hypothetical portfolio is compared to the market.

Illustration:

	Managed Portfolio	Market	T-bill
Return	35%	28%	6%
Stan. Dev	42%	30%	0%

Let the Hypothetical Portfolio's risk be same Risk as Market. So lending portfolio type emerges.

Wt. in Market portfolio = Std. Deviation of Market / Std. deviation of Managed portfolio

=30/42 = .714

Wt. in Treasury portfolio = 1 – Wt. in Managed portfolio

= (1-.714) or .286 in T-bills

Return from the Hypothesized portfolio = (.714) (.35) + (.286) (.06) = 26.7%

Since this return is less than the market, the managed portfolio underperformed.

v. Star analysis: Star Analysis of portfolio evaluation is similar to Mean Standard Deviation rankings. Companies are put into peer groups. Then stars are assigned

- 1-lowest
- 5-highest

This ensures, concentrating funds in undervalued stocks or undervalued sectors or industries, balancing funds in an active portfolio and in a passive portfolio. It avoids active selection, as that will mean some unsystematic risk

vi. Treynor-Black model: The Model is used to combine actively managed stocks with a passively managed portfolio. It uses a reward-to-risk measure that is similar to the Sharpe Measure. The optimal combination of active and passive portfolios can be determined.

P is the portfolio that combines the passively managed portfolio with the actively managed portfolio and its return is given as r_p and risk s_p. (r_m-r_f) is the excess return on actively managed portfolio

Result: $(r_p-r_f)/s_p > (r_m-r_f)/s_p$

vii. Evaluation of Overseas portfolios in domestic currency return terms

Global portfolios have two types of returns to reckon with, namely overseas project return in overseas currency and forex return. So, to deduce the local currency return of a global portfolio, use the formula as below:

Return in Domestic terms on overseas investment = $(1 + r_{FM})(1 + r_{FX}) - 1$

Where, r_{FM} = Return on the foreign investment in its local currency

r_{FX} = Return on the foreign exchange, that is Percent appreciation of the foreign currency.

Illustration:

Initial Investment : Rs 100,000; Initial Exchange: Rs. 80.00 / Pound Sterling

Final Exchange: Rs. 84/ Pound Sterling; Return in British Security: 10%

Find return on overseas investment in rupee terms.

Solution:

Return in Rupee terms = (1 + Return in British security) (1 + Return or appreciation on foreign currency) -1

$$= [(1 + 0.1)] [1 + (84-80)/(80)] - 1$$
$$= [(1 + 0.1)(1 + 0.05)] - 1$$
$$= [(1.1)(1.05)] - 1$$
$$= 1.155 - 1 = 0.155 = 15.5\%$$

6.7.8. Monitoring and revising (if need be) the portfolio

Investment is not a one time activity to forget it altogether after the portfolio is bought. The investment market is dynamic. So risk-return aspects keep changing. So monitoring the market is needed. If the market has considerably changed, a revision of the portfolio may be needed. And this involves going about all the tasks described above once again right from revising your investment goal, if need be, in the light of market changes and finally executing the revised portfolio.

7. TOOLS OF CASH MANAGEMENT FOR A MNC

There are several tools available for an MNC to manage cash flow. These are dealt below.

7.1 Payments Netting

Highly coordinated international interchange of materials, parts and finished goods among the many units of MNCs take place nowadays. These are accompanied by a heavy volume of inter-affiliate fund flows. Physical transfer o< funds cross-border involves several costs - cost of purchasing the forex, float cost, transaction cost etc. All these can be reduced / eliminated through netting.

Netting simply means that payments among affiliates go back and forth, and only net sum due to is paid/received. Netting can be bilateral or multilateral. In *bilateral netting* two parties are involved. A German subsidiary of an Italian parent MNC sells goods to a Swiss firm $ 1 mn. The Swiss firm sells goods to the German unit for $ 2 mn. On simple netting the German unit sends $ 1 mn to the swiss firm.

Multilateral netting involves plural number of affiliates each having deals with they rest leading to cross receivables and payables. The method of multilateral netting is useful. Consider the table showing interaffiliates' receipt - payment matrix. A situation like this emerges when purchases and sales take affect mutually among affiliates.

Paying affiliates of an MNC					
Receiving affiliates	**USA**	**France**	**India**	**Malaysia**	**Total**
USA	-	6	10	5	**21**
France	5	-	12	8	**25**
India	9	15	-	2	**26**
Malaysia	4	5	9	-	**18**
Total	**18**	**26**	**31**	**15**	**90**

From the above, we can prepare total receipt and total payment and net payment and net receipt schedule:

	Total Receipt	Total Payment	Net Receipt	Net Payment
USA	21	18	3	-
France	25	26	-	1
India	26	31	-	5
Malaysia	18	15	3	-

With the netting, the amount of funds transferred stands reduced to just $ 6 mm as against the original position of $ 90 mn, The France and Indian affiliates will remit local currency equivalent of the net obligations to the central pool, were these currencies are sold in exchange for the receiving affiliates' currencies. For effecting netting, there should be free convertibility of currencies. The cost of sending funds between two affiliates can vary significantly from time to time because one affiliate may receive from a third party currency needed by the other affiliate. The netting and the currency transfer will obviate the need for currency conversion and thus cost of conversion is avoided.

Below transportation matrix of destinations and sources of funds based on the multilateral netting shown above, is derived. If data on cost of sending $1 mn from France to USA and to Malaysia and from India to USA and Malaysia are available the transportation matrix will be complete with cost data as well. Then the transportation algorithm can be used to solve optimal transportation of funds.

Derived Transportation Matrix from Netting

Sources □	**Destinations**		**Total Supply ($ Mn)**
	USA	**Malaysia**	
France			1
India			5
Total Demand ($ mn)	**3**	**3**	**6**

7.2 Leading and Lagging

An important means of transferring funds among affiliates is an acceleration (leading) or delay (lagging) in the payment of inter-affiliate accounts by modifying the credit terms extended by one unit to another. Say affiliate A is supplying monthly goods $ 1 mn to affiliate B on a 90-day credit. This means on an average B owes $ 3 mn to A. It is a financing by A for B. If the credit terms are changed to 180 days that will produce a one-time shift of an additional $ 3 mn to affiliate B. This tantamount to a remittance by A to B. Later if the credit terms are reversed back to 90 days, that will result in a remittance to B from A, a sum of $ 3 mn.

We can superimpose interest rate factors in the system and decide whether leading or lagging is good. Let the borrowing rates and lending rates in the two countries where A and B are located, are as follows:

	Borrowing rate	Lending rate
US (place of A)	7.8%	7.0%
UK (place of B)	7.3%	5.4%

Four possibilities of surplus-shortage situation could prevail with respect to the two units. That is both A & B have surplus. Both A and B have shortage A has surplus and B shortage and the vice-versa position. The interest rate differentials are:

		Surplus	Short
US	Surplus	7.0-5.4% =1.6%	7.0-7.3%: =-0.3% :
	Short	7.8 - 5.4% = 2.4%	7.8-7.3%: =- 0.5% :

If both the affiliates have surplus, the differential spread is 1.6%. If both are in shortage the differential spread is -0.3%. When US affiliate is in shortage the spread is 2.4% and when UK affiliate is in shortage the spread is 0.5%. When the spread is +ve, the MNC benefits by moving funds to the US - it will either pay less on its borrowings or earn more on investments. The movement of funds can be effected by leading payments to the US and lagging payments to

UK. If the differential is -ve, fund transfer to UK is advantageous by leading payments to UK and lagging payments to US.

Look the example, UK unit owes $ mn to US unit. The timing of this payment can be changed by up to 90 days either way. Assume US affiliate is borrowing, ie., short of cash. By leading payments to US the following positions emerge. Saving in US units interest: $ 2000000 x 7.8/100 x 3/12 = $ 27,000. The net benefit is $ 12000 to the group by leading payment to US. The figure can be directly arrived as well: $ 2000000 x 2.4/100 x 3/12 = $12000. Hence the fund transfer by leading and lagging,

7.3 Transfer Pricing

Transfer pricing refers to pricing product/service sales/purchases within group concerns. Should transfer pricing be at cost or at a profit, is a debatable issue. If intra concern transfers are made at cost, though it may be objective it conceals the efficiency of both the transferor and transferee. If intra-concern transfers are to be made at a profit the question of reasonable profit is to decided and there is no consensus as to what reasonable profit percentage. As to MNCs transfer pricing has a great import as it can be used to reduce tax gain by shifting profit from high-tax zone to low-tax zone, to reduce duty levy by similar shifting and to avoid exchange controls. Transfer pricing can be a tool of cash remittance. An under-invoicing of purchase means money transfer from the buyer to seller and vice versa. **(In the previous unit, transfer pricing was thoroughly studied)**

7.4 Inter-company or Inter-affiliate Loans

Direct loans, back-to-back financing and parallel loans are the forms of loans adopted to transfer fund. ***Direct loans*** involve two parties (i) parent and affiliate or (ii) one affiliate and another. Other forms involve an intermediary.

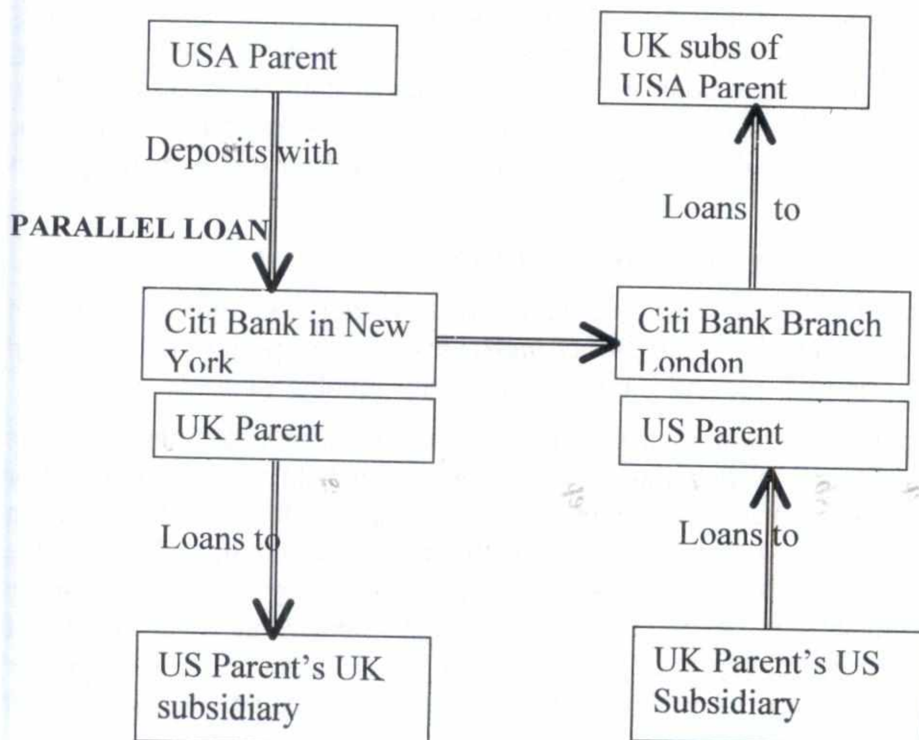
Back to Back loan is also called fronting loans or link financing. It is employed to finance affiliates located in nations with high interest rates and/or restricted capital market. The parent firm in country A deposits funds with a bank in country A, who in turn lends to the affiliate in country B. From the bank's point of view its risk is nil as the loan is backed up by the deposit. For the MNC two advantages flow. The subsidiary gets finance at reduced rate of interest as the withholding tax rate on loans from multinational banks is lower than the same on loans from MNCs. The government of country B, will permit

the subsidiary to honour amortization schedule of a loan from a multinational bank, even though it may not allow it to do so in respect of a loan from MNC parent/another affiliate, when exchange controls are introduced. Assume opportunity cost of funds to the parent be 10%, its deposit fetch 8%, its marginal tax rate 35%. The affiliate's marginal tax rate 45%, its cost of back to back loan 9% (with a spread of 1% to the bank) and currency depreciation of the affiliate's country 11%. Then the effective cost of back to back loan equal to:

Interest cost to parent	- Interest income to parent	+ Interest cost to affiliate	- Tax gain on exchange less
=10%(1-.35)	- 8% (.35)	+ 9%(1-.45)	- .45(11%)
= 6.5%	- 2.8%	+ 4.95	- 4.95
= 3.7%			

Back to back loans can be used to access blocked currency funds without physically transferring them. This tantamount to a money transfer.

BACK TO BACK LOAN



To know parallel loan as a method of funds transfer, look at the following exhibit as well which describe two situations..

Case (a)		Case (b)	
UK	**US**	**UK**	**US**
UK Parent lends to US Parent's sub. In UK	US Parent lends to UK Parent's sub. In US	UK Parent 1 lends to UK Parent 2	UK Parent 2's Subsidiary in US lends to UK Parent 1's UK Subsidiary

2.5 Cash Planning and Budgeting

Cash planning and budgeting is needed to be well informed in advance of cash inflows cash outflows, possible surplus or shortage. The duration over which surplus/shortage is expected to last and so on. To ensure adequate and accurate planning and forecasting, a good reporting system is needed. Also a speedy reporting system is required in view of the volatility of the international money market. Telex and Fax services have come in handy in this regard. Daily cash forecast reports giving summary data branch-wise of receipts, payments and net position are generally prepared to spot branches where surplus is expected and those where shortage is expected. The forecast cycle period may very from 5 days to 15 days, on a rolling form. Given below is a 5 day forecast cycle for two branches of an MNC as on 12th Dec.

Date: Feb. 12 , 2007 **(fig $mn)**
Affiliate: Chennai
Opening Cash position: + 150
Five day forecast

Date Feb. 12, 2007
Affiliate: Singapore
Opening Cash position: + 260
Five day forecast

Day	***Deposit***	***Disburse***	***Net***
1	350	500	-150
2	125	200	-75

Deposit	***Disburse***	***Net***	***Net for Group***	
			Daily	***Cumulative***
450	50	400	250	250
400	100	300	225	475

3	200	300	100	700	900	-200	-100	375
4	125	425	-300	650	450	200	-100	275
5	250	200	50	500	410	90	140	415

Net for period in Chennai	-375	Net for period in Singapore	+ 790
Closing Cash position	- 225	Closing Cash position	+1050
Required minimum	75	Required Minimum	300
Deficit	-300	Surplus	750

The MNC might think of leading payment, if any, from Singapore to Chennai, or lagging remittance from Chennai, if any, to Singapore subject to interest rate considerations. There is surplus on all days at the group level and that short term investment must be decided.

2.5.1. Estimating optimum level of cash holding:

Cash management involves deciding the optimum level of cash holding. Cash is held due to liquidity preference. The motives for holding cash are four: Transaction (to meet the daily needs of transactions), Precaution (to tide over unforeseen contingencies), Compensation (to meet the needs of minimum balances to be held with banks) and Speculation (to benefit from price movements by long buying or short selling). There must be an optimum level of cash meant for transactions alone.

The optimum level of cash under certainty business environment depends on annual excess cash outflow over inflow, the transaction cost of borrowing per transaction and the cost of fund or interest cost. Given these, the EOQ model can be applied to find the optimum cash holding.

a. EOQ Model:

$EOQ = [2AT / C]^{1/2}$

A = Annual requirement of funds
(excess of outflow over inflow)

T = Transaction cost per transaction

C = Cost of fund, per monetary unit, per annum

Suppose a business estimates that its annual cash inflow as \$ 42mn, outflow as \$ 78 mn, transaction cost per transaction \$ 200 and interest rate 4 % p.a. Therefore the excess outflow = \$ 78- \$ 42 = \$ 36 mn. The cost of fund per dollar per annum = \$ 0.04

Then the EOQ = $[2 \times \$36 \text{ mn} \times \$.0002 \text{ mn} / 0.04]^{1/2}$ = \$ 0.6 mn or \$ 600,000.

Number of orders = 60 times (that is: \$ 36,000,000 / \$ 6,00,000 = 60) in the year. That is every sixth day, \$ 6,00,000 need to be borrowed. The total transaction cost is = 60 x \$200 =\$ 12,000.

The interest cost or carrying cost = Average daily cash balance x Cost of 1 dollar per annum . Average daily cash balance = EOQ/2 = \$600,000/2 =\$ 300, 000. So interest cost = \$ 300, 000 x 0.04 = \$ 12,000.

Under EOQ model the optimum cash balance is obtained when total transaction cost equal total carrying cost.

b. Miller – Orr Model

The Miller – Orr model is suited for uncertain business environment and it establishes an optimum return point from an upper point and a lower point. The optimum return point, Z is given by:

$$Z = [3b\sigma^2 / 4i]^{1/3}$$

Where, b = transaction cost

σ^2 = Variance of daily net cash balance

i = Cost of fund, per monetary unit, per day

Then, upper level, H, is fixed as H = 3Z and a low level, 'L', is fixed at certain convenient level below 'Z'. Let b = \$216, σ^2 = 900,000 and given annual interest rate of 7.3%, i = Cost of fund, per monetary unit, per day would be = 1 x [7.3/100] x [1/365] = \$0.0002.

Then $Z = \{[3 \times 216 \times 900,000] / [4 \times 0.0002]\}^{1/3}$

$= \{729,000, 000,000\}^{1/3}$

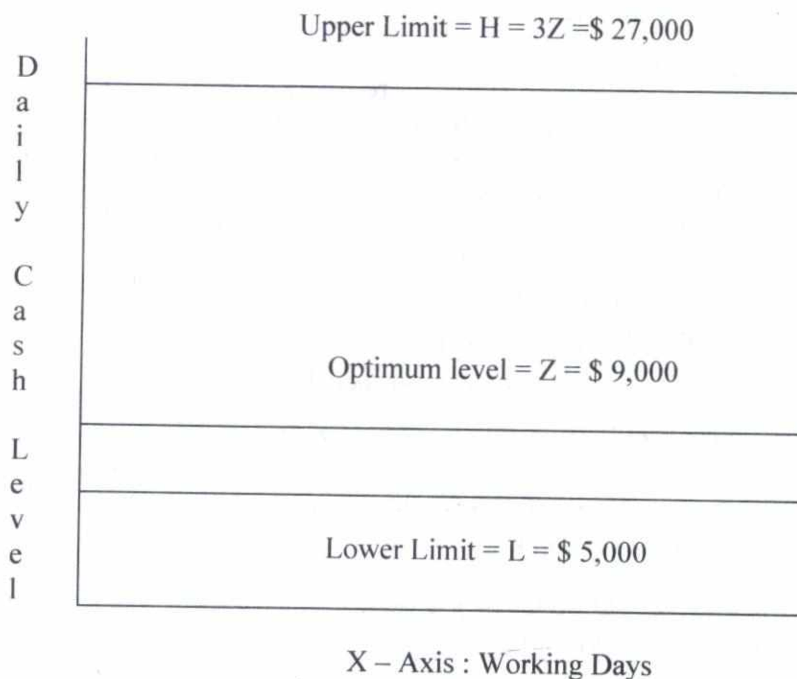
= \$ 9,000.

So, upper limit of cash holding = H = 3Z = 3 x \$ 9000 = \$ 27, 000.

The lower limit of cash holding = L = Say, \$5000.

Then the following graph will depict the Min-Max limits and optimum return point of daily cash balance. The Y axis measures Cash balances on daily basis. The X axis denotes days. As long as the daily cash balance is moving within the **upper and lower** limit, no corrective step is taken. When the level reaches the upper level, immediately it is brought down to Z by siphoning out H-Z amount of cash and investing the same in the readily marketable securities. When the lower limit is hit any time, immediately the cash level is enhanced to Z by selling securities to realize Z-L amount, which is required to restore the cash balance from L to Z. Miller – Orr model is a twin-asset (cash and marketable securities) approach to cash management. Graph 4 gives a pictorial view of Miller –Orr model.

Graph 4 Miller –Orr Model



Questions

1. Explain the concept and scope of cash moment in the context of an MNC..
2. Present bilateral and multilateral netting as tools of cash management and derive a transportation model from multilateral netting using imaginary figures.
3. Explain transfer pricing. Can it be used for fund transfer? How?
4. Discuss the use of leading and lagging in cash management. How is the interest rate scene relevant in designing global remittances under leading and lagging.
5. Explain the types of inter- company loans as a means of managing cash flows across borders.
6. Present the EOQ and Miller-Orr model and the budgeting tool of cash management.
7. Explain the issues and process of Short-term investment management.
8. Given in table are the payment and receipts due among group concerns. Prepare a scheme of multilateral netting and develop a transportation matrix with assumed cost data on fund transfers.

Receiving affiliates	*Paying Affiliates*			
	USA	*France*	*India*	*Malaysia*
USA	-	16	110	55
France	65	-	112	87
India	91	155	-	32
Malaysia	49	65	98	-

9. Let **$R_m = 16\%$ and $R_f = 5\%$.** **Std. Deviation** of market portfolio is 6%.

One company invests $5 million of its money at **R_f** and balance $15mn of in market portfolio. What is its portfolio return and risk ?

10. Let **$R_m = 17\%$ and $R_f = 6\%$.** **Std. Deviation** of market portfolio is 5%.

One MNC invests in market portfolio its own money $15mn and also borrowed money $5 mn. It borrows at $\mathbf{R_f}$ from the money market. What is his portfolio return and risk?

11. Let $\mathbf{R_m = 17\%}$ **and** $\mathbf{R_f = 6\%}$. **Std. Deviation** of market portfolio is 5%. One treasury manager invests in market portfolio own money $15mn and borrowed money $5 mn. He could borrow at $\mathbf{R_f}$ plus **100 basis** points. What is his portfolio return and risk?

12.

Portfolio	*Average Return*	*S.D.*	*R_f (Risk Free Rate)*
A	24%	4%	10%
B	28%	8%	10%

Evaluate the two portfolios using Sharpe index.

13.

Portfolio	*Return*	*β_i*	*R_f*
A	24%	0.5	10
Market	28%	1.0	10

Evaluate A using Treynor's model.

14.

Portfolio	*Return as Portfolio*	*Portfolio Beta*
1	19%	1.2
2	17%	0.8
3	21%	1.5
Market Index	16%	?

The Risk Free Rate be 10%. Evaluate using Jensen's measure.

15. Explain the concepts and importance of working capital in context of an MNC.

16. Bring out the assets and liabilities components of working capital.
17. Explain the factors that determine the quantum and composition of working capital.
18. Present the relative merits and demerits of the three approaches to financing of working capital.
19. Discuss the different financing avenues for working capital. Should long term capital be used in financing working capital.
20. How do you construct and select a portfolio under Markowitz and Sharpe approaches?
21. Initial Investment : Rs 500,000; Initial Exchange: Rs. 40.00 /$. Final Exchange: Rs. 42/$. Dollar Return on the US Security: 10%Find return on overseas investment in Rupee terms.
22. A Business estimates that its annual cash inflow as $ 425mn, outflow as $ 780 mn, transaction cost per transaction $ 320 and interest rate 6% p.a. Find the optimum Cash holding, number times orders need to be made, total ordering cost and total carrying or interest cost.
23. Using Miller – Orr model estimate upper and optimum cash holding, given: Transaction cost = $48. 667, σ^2 = 365,000 and given annual interest rate of 10%. Taking half of optimum size as the lower limit, draw a graph showing all the three levels indicating the values.
24. The opportunity cost of funds to an MNC parent is 11%, its deposit fetches 8% and it pays a marginal tax rate 30%. It has an affiliate in the marginal tax rate bracket of 45%. Its cost of back to back loan 9.5% (with a spread of 150 basis points over deposit rate of the bank). Expected currency depreciation of the affiliate's country is 10% over a year. Find the effective cost of back to back loan.

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UNIT – V

MNC RECEIVABLES AND INVENTORY MANAGEMENT

Learning Objects: To know
i. Meaning of credit management,
ii. Objectives of Credit management,
iii. Credit policy variables,
iv. Alternative credit policies criterion policy,
v. Evaluation of alternative credit policies,
vi. Letters of credit.
vii. Concept and scope of inventory management
viii. Overview of tools of inventory management
ix. Outsourcing as a method of inventory management by MNCs
x. Overseas production as a method of inventory management by MNCs

1. MEANING AND SCOPE OF CREDIT MANAGEMENT

Credit and Receivables management refers to managing levels of credit extended to customers, collection of receivables from customers and optimizing risk-return in respect of investment in accounts receivables.

Receivables are important current assets. Businesses have receivables, i.e., dues from credit customers, domestic and international. To increase sales, to earn more profit, to meet the competitors, to achieve break even volumes, to gain a foot hold in the market, to help the customers on whom the business fortune is intimately in nexus with and to develop a strong brand image, receivable, i.e., credit sales, is vital.

Maintaining accounts receivables involves cost. Administrative cost, capital cost, collection cost, bad-debt cost etc., are diverse costs involved. As in any financial decision matching costs with benefits is needed here too. And what is the optimum level of accounts receivable is to be decided. Too little of accounts receivable, that is very limited credit sales reduces sales, loss of customer to the competitor's camp, reduced profit and so on. Of course no bad

debt, less capital locked up in accounts receivables resulting lower capital cost etc., are benefits. But, a little more risk can be taken and profits can be inflated. Too much of accounts receivables lead to scale advantage and hence more profit. but costs of added bad-debt, capital cost, etc., are involved. Perhaps by reducing accounts receivables costs can be steeply reduced, while benefits are not similarly decreasing. Therefore optimum investment in accounts receivables has to be planned and achieved.

Receivables management is planning, execution and control of activities pertaining to receivables management. The activities involved here are establishing credit standard (to decide the class or classes of customers to be extended credit and extent of credit), fixing optimal credit period, prescribing optimal discount terms and adopting effective collection strategies. Each of these activities needs planning, execution and control.

Investment in accounts receivables forms the second most important segment of current assets, next only to investment in inventory. In wholesale trade the share of receivables in total current assets higher at over 50%, while in manufacturing business this is about a-third of current assets. Hence, management of receivables is a significant priority function of the finance/marketing division of a firm. A credit department must be established to ensure sound management of receivables.

The goal of receivables management is minimizing cost of alternative credit strategies and maximum benefits therefrom Trade-off of cost and benefit is needed.

2. OBJECTIVES OF CREDIT/RECEIVABLE MANAGEMENT

The objectives of receivables management are as follows:

i) Increase the volume of credit sales to the optimum level in relation to the credit period.

ii) To have the optimum level of accounts receivables.

iii) To have business volume to optimum level so that the point of overtrading or under-trading will not occur.

iv) Balancing of liquidity versus profitability in the context of trade off between credit volume of sales and the time span for realization from credit customers.

v) Control over cost of investment in sundry debtors and the cost of collection.

vi) To decide the price factor and the credit factor in relation to the competitor business.

vii) To take into account the external factors such as mercantile business conventions, effect of inflation, seasonal factors, government regulations and general economic condition.

viii) The proper lines of communication and co-ordination between finance, production, sales, marketing and credit control department.

3. CREDIT POLICY VARIABLES

Policy is a guide line to action. Policy establishes guideposts or limits for actions. Credit policy, therefore, refers to guidelines regarding credit sales, size of accounts, receivables, etc. Credit policy has four variables. Credit standard, credit period, credit terms and collection policies are the policy variables.

Credit standard refers to classification of customers on the basis of their credit standing and stipulation of credit eligibility of different classes of customers. The high rated customers may be extended unlimited credit, the moderate credit standing class may be extended a limited credit facility and the rest may not be given any credit facility at all. Triple A - "AAA" and double A - "AA" rated companies come in the high rated class with nil bad - debt loss. 'A' and triple B - "BBB" rated companies come in the moderate rated class with minimal bad-debt loss. 'BB' and 'B' rated companies come in the low credit rated class and 'C' and 'D' rates company come in the very low credit rated class with-substantial credit risk. *Credit period* refers to how long credit is allowed. Longer credit period might help drawing more customers and vice versa. Longer credit period involves more capital cost and vice versa. *Credit terms* refer to discount incentive for prompt payment. Even though a longer credit period may be allowed, prompt payment by offering cash discount can be ensured. 2/30, net means, 2% cash discount for payment within 30 days, failing which full payment by the 45th day of transaction is needed. *Collection Policy* refers the seriousness or otherwise with which collection is dealt with, especially the delinquent customers. It may be harsh or warm.

3.1 Lenient Vs. Stringent Credit Policy

Credit policy can be liberal or stringent. *Liberal credit* policy adopts a lenient credit standard (i.e., almost all are extended credit), longer credit period, higher cash discount for a longer entitlement period and informal and accommodative collection procedure. Stringent credit policy does the opposite. Both policies have advantages and accompanying costs. Hence, choice must be exercised by individual firms after assessing the net effect of liberalizing or tightening up the credit policy.

An analysis of effects of lenient and stringent credit policies is depicted below in a table form:

Factors	Lenient Policy	Stringent Policy
Sales	More	Less
Capital locked up	More	Less
Customer base	More	Less
Competitive edge	More	Less
Profit	More	Less
Customer goodwill	More	Less
Capital cost	More	Less
Bad debt loss	More	Less
Administrative cost	More	Less
Collection cost	More	Less
Discount allowed	More	Less

Lenient Credit policy enhances benefits (1 to 6) as well as costs (7 to 11). Stringent policy reduces both benefits and costs. Hence arises the problem of choice. Hence is the need for detailed evaluation for decision making.

3.2 Evaluation Credit Risk

One of the aspects of credit standard is evaluation of credit risk.

To evaluate credit risk, credit managers consider the **six C's** of credit worthiness, namely character, capacity, capital, conditions, cash and collateral.

Character is a customer's own desire to pay off debts. This factor is of considerable importance, because every credit transaction implies a promise to pay. Experienced credit managers frequently insist that the moral factor is the most important issue in a credit evaluation.

Capacity is a subjective judgment of customer's ability to pay debts as reflected in the cash flows of the individuals or firm. It is also gauged by their past records. supplemented by physical observation of customer's plants or stores, and their business methods.

Capital refers to the financial strength of the customer, which depends primarily on the customer's net worth relative to outstanding debt obligations.

Conditions refer to the impact of general economic trends or to special developments in certain areas of the economy that may affect customers' ability to meet their obligations.

Cash refers to the liquidity position. An otherwise sound party may suffer illiquidity because cash flows are mismatched.

Collateral is any asset that customers may offer as a pledge to secure credit. Collateral, thus, serves as a cushion or shock absorber if one or several of other C's are insufficient to give reasonable assurance of repayment on maturity.

Information on these items is obtained from the firm's previous experience with customers, supplemented by a well-developed system of information-gathering groups.

Means of assessment of credit worthiness: The credit worthiness of a customer can be assessed by any one of the following:

a. Past records about the business
b. Opinions of salesmen who have acquired information by interviewing the customer
c. Valuation by professionals on the customers business and assets.
d. Analysis of the financial statement of business.

Sources of Credit information: Credit information can be gathered by employing the following indirect methods.

- Trade references
- Bank references
- Trade directories
- Trade journals
- Credit rating services

4. COLLECTION POLICY

Collection policy refers to the procedures the firm follows to obtain payment of past-due accounts. Prompt collection of accounts tends to reduce investment required to carry receivables and the costs associated with it. A firm with long over-due accounts will be exposed to greater amount of risk of non-payment. It is also possible that customers who have not cleared the payment long due, may pay be hesitant to place order on the firm for further supplies causing loss of some sales to the firm.

The overall collection policy of the firm is determined by the combination of collection procedures it undertakes. These procedures include such things as reminder letters sent. phone calls, personal calls and legal action. Monthly statements should be sent to the customers of overdue accounts. Some of the customers may not pay until they are reminded. It should be ensured that statement of accounts is sent promptly at the end of each month.

The most important variable of credit policy is the amount expended on collection of accounts. Other things remaining same, the greater the amount spent on collection efforts, the lower the percentage of bad debt losses and the shorter is the average collection period and vice-versa.

4.1 Debt Collection Drives

Some of the effective steps in debt collection drive are:

i. Organizing and maintaining an efficient credit (collection) department.
ii. Setting credit standards and terms and defining clearly the collection policies and procedures.
iii. Preparing periodically, the customers accounts by age, sales regions, territories etc., and sending them to respective sales offices staff for follow up.

iv. Assigning specific responsibility for collection.
v. Offering incentives like cash discounts for; prompt payments.
vi. Organizing a machinery for settlement in case of disputes.
vii. Reviewing the customer's accounts periodically, to identify frequent defaults and irregular accounts in order to tighten the credit terms and avoid had debts.

4.2 Factoring Receivables

Factor or Factoring company is a firm that, by arrangement, purchases the trade debts of its clients and collects them on its own behalf. The factor has the right to select, the debts he will service and may not be prepared to make advances against debts that the considers doubtful. Factoring is common method of financing receivables in United States but developed more recently (since 1960) in the United Kingdom. The first factoring organization to operate in the U.K. on a substantial scale was International Factors Ltd., a consortium of well known and respected financial and commercial institutions like the First National Bank of Boston and Hill Samuel Co. etc. The Portland Group Shield Factors Ltd., and Heller and Hambras are also active both home and overseas trade.

4.3 Classification of Accounts Receivables

According to age, accounts receivables should be classified into;

i. debts outstanding for a period exceeding six months;
ii. other debts.

According to security and realisability, accounts receivables should be classified as under:

i) debts fully secured and in respect of which the company is fully secured;
ii) debts considered good for which company holds no security other than debtor's personal security; and
iii) debts considered doubtful or bad.

This classification helps in designing suitable collection efforts by the management.

5. EVALUATION OF ALTERNATIVE CREDIT POLICIES

The benefits and costs of alternative credit policies have to be forecast and compared. Five steps are involved in evaluation. These are:

i. Calculate cost of extending credit under current policy,
ii. Calculate cost of extending credit under new policy,
iii. Compute incremental cost comparing (i) and (ii) above,
iv. compute incremental benefit, disregarding credit cost,
v. Compare incremental cost and incremental benefit.

5.1. Credit period Extension

Consider the following case, involving credit period extension issue. A US parent's French Subsidiary has annual sales of $ 2 mn with 90 days credit period. If credit period is risen by a month, sales will rise by 6% or $ 120,000. Cost of additional goods sold is $ 70,000. Cost of finance 1% p.m. Euro depreciates at the rate of 0.5% per month. Should the parent firm permit French subsidiary to rise credit period?

Solution:

Present value of $ 1 receivable at 90 days
given financial cost of 1% p.m $= 1/(1.01)^3$
$= 0.9706$

Cost associated with Euro depreciation
@ 0.5% p.m for 3 months $= (1.005)^3-1$
$= 1.0151-1=0.0151$

Euro depreciation adjusted PV of $1 receivable
after 90 days $= (.9706)(1 - 0.0151)$
$= (.9706)(0.9849)$
$= 0.9559$

This implies an overall credit cost of= (1-0.9559) = 4.41% for 90 days

The same way, for 120 day credit period, the overall cost will be: 5.85%

So, the incremental credit cost for 1 month of credit extension, i.e., from 3 to 4 months = 1.44%; (i.e., 5.85% - 4.41%)

The incremental profit of the credit extension credit decision is given by:

$P = [\square C - \text{Addl. Sales} \times K_n - \text{Old Sales} \times (K_n - K_o)]$

Where P = Change in profit,

ΔC = Contribution on Additional sales

K_n = New Rate of cost of receivables = 5.85%

K_o = Old Rate of credit cost = 4.41%

$(K_n - K_o)$ = Incremental cost = 5.85% - 4.41% = 1.44%

Putting these values, we get,

P = ($120000 - $70000) -$(120000)(0.0585) - $(2000,000) x(0.0144)

= $ 50000 - $ 7020 - $ 28800 = $ 14180

This credit period extension decision is good as profit rises by $ 14180.

Similarly, if credit period is reduced net position needs to be worked out. Here there will be loss in contribution due to decline in sales. But gains in the form of reduced capital cost, bad debt, etc are possible. The effect on profit before tax must be computed to decide.

5.2. Credit Standard Relaxation

A US company sells on eredit to customers in high credit rated countries only. Its annual sales average $ 600 mn, (S_o). Its cost of capital is 12%, (K). Its variable cost to sales ratio (VCR) is 30%. The average collection period (ACP_o) works out to 45 days. The firm wants to extend a limited credit sales to customers in the next level credit worthy nations too. It expects to book additional sales of $150 mn, ($\square S$). The new average collection period (ACP_n) will go up to 60 days. Its bad debt is likely to rise to 1.5% sales from current 1% of sales. Is the credit standard relaxation good?

Solution:

$$\Delta P = \Delta C - [(\Delta S) \times K \times VCR \times (ACP_n / 360)] - S_o \times K \times (ACP_n - ACP_o)/(360) - \Delta BD$$

ΔP = Addl Before tax profit

ΔC = Addl Contribution = Addl.Sales x (1-VCR) = $150 mn x (1- 0.7)

= $150 mn x 0.3 = $45mn

$(\Delta S) \times (ACP_n / 360) \times VCR \times K$ = New Invt. in New debtors x Cost of capital

$= \$150 \text{ mn} \times (60/360) \times 0.7 \times 0.12 = \$ 2.1 \text{ mn}$

$S_o (ACP_n - ACP_o)/ (360) \times (K)$ = Addl. Invt. In old debtors x Cost of capital

$= \$600 \text{ mn} \times [(60-45)/360] \times 0.12 = \$ 3$ mm.

ΔBD = Addl. Bad debts

= New Level of Bad debt – Old level of Bad debt

= [$ 600 mn + $ 150 mn) x 1.5 %] – [$ 600 mn x 1%]

= [$ 750 mn x 0.015] – [$600mn x 0.01] = $ 5.25 mn.

Substituting the computed data we get:

ΔP = $45mn - $ 2.1 mn - $ 3 mn - $ 5.25 mn

= $ 34.65 mn

It is profitable to extend credit sales to the customers in the less credit countries as well.

Similarly, if credit standard is tightened, net position needs to be worked out. Here there will be loss in contribution due to fall in sales revenue. But gains in the form of reduced capital cost, bad debt, etc are possible. The effect on profit before tax must be computed to decide.

5.3. Credit terms

Credit terms refer to discount incentive for prompt payment. Even though a longer credit period may be allowed, prompt payment can be ensured by offering cash discount. A company offers 2/30, net 45. Its current sales are $ 400 mn, PV ratio 28%, K = 12%. 60 percent of accounts sales avail cash discount. It wants to reduce the cash discount percent to 1%. As a result it expects that its sales will drop by $ 30 mn. Percent of discount availing customers will become just 40%. Is it a good move?

Solution:

We need to compute the ACP_o and ACP_n.

$ACP_o = 0.6 \times 30 \text{ days} + 0.4 \times 45 \text{ days} = 36$ days.

$ACP_n = 0.4 \times 30 \text{ days} + 0.6 \times 45 \text{ days} = 39$ days

□P = Savings in Cash discount – Addl. capital cost – Loss in Contribution

Savings in Cash discount = Old Discount level – New Discount level

$= [S_o \times P_o \times R_o] - [S_n \times P_n \times R_n]$

= [$ 400 mn x 0..6 x 0.02] – [$ 370 mn x 0.4 x 0.01]
= $ 4.8 mn - $ 1.48 mn = $ 3.32mn.

Addl. capital cost = [Accounts Receivable New - Accounts Receivable Old] x K.
= [$ 370 x(39/360) - $ 400 x (36/360)] x 0.12
= [$40.083 – $40.0] x 0.12
= $ 0.001mn

Loss in Contribution = Fall in sales x PV ratio = $ 30 mn x 0.28 = $ 8.4 mn

So, □P = Savings in Cash discount – Addl. capital cost – Loss in Contribution
= $ 3.32 mn – $ 0.001mn - $ 8.4 mn = - $ 5.081.

There is fall in profit. It is loss. So, the change in policy is not to be pursued.

Similarly, if credit terms are relaxed the net position needs to be worked out. Here there will be gain in contribution. But losses in the form of increased capital cost, increased discount, etc are possible. The effect on profit before tax must be computed to decide.

5.4 Collection Effort

Collection effort needs to be balanced. A stringent collection effort will reduce sales and hence contribution too and increases the administrative cost. So these result in loss. But bad debt loss, capital cost will fall. Thus there is gain. A liberal collection effort will give more contribution and less administrative cost. But cost on capital locked up in accounts receivable and bad debt loss will mount. To liberalize or to tighten? We need to match the gain and the loss together, and the net position will govern our decision.

Illustration:

A company adopts a stringent collection effort. Its current sales are $ 400 mn, PV ratio 28%, and K = 12%. 2% of sales are spent on collection administration, which is considered high. The bad debt is just 0.5% of sales. The ACP is 30 days. It wants to liberalize its collection effort. As a result sales will boost to $500mn. But bad debt will scale up to 1%. Administrative cost will get halved from the present rate percent. ACP will however jump to 50 days. Is it good to liberalize collection effort?

Solution: The benefits are: Increase in contribution and fall in administrative cost.

The drawbacks are: Increase in bad debt and capital cost. So, we have to calculate these and find the net position to aid our decision process.

i. Increase in contribution = Addl. Sales x PV Ratio = \$100 mn x 0.28 = \$28 mn.

ii. Fall in administrative cost = Old cost – New cost

= 2% on \$400mn – 1% on \$500mn

= \$8mn-\$5mn = \$3mn.

iii. Increase in bad debt = New level bad debt – Old level bad debt

= 1% of \$500mn - 0.5% on \$400mn

= \$5mn - \$2mn = \$3mn

iv. Increase in capital cost = [Addl. Sales x VCR x K x ACP_n /360]

+ [Old Sales x K x (ACPn –ACPo) /360]

= [100 x (1 –0.28) x 0.12 x 50/360] + [400 x 0.12 x (50-30)/360]

= \$1.2 mn + \$ \$2.67mn = \$3.87mn.

Now □P = \$ 28 mn.+ \$3mn - \$3mn - \$3.87mn = \$ 24.13 mn.

It is advantageous to liberalize the collection effort.

Similarly, if collection effort is tightened net position needs to be worked out. Here there will be loss in contribution. But gains in the form of reduced capital cost, bad debt, etc are possible. The effect on profit before tax must be computed to decide.

5.5. Credit Extension decision

The credit granting decision to a particular customer is to be based on expected profit, over time horizon.

Expected profit = P (Revenue – Cost) –(1- P) (Cost). where 'P' is the probability payment will be received. Suppose a deal with a customer involves \$400`mn in revenue to the firm. The cost of sales is \$310 mn. Given 'P'= 90%, the Expected Profit = 0.9 (\$400mn-\$310mn) – 0.1 (\$310mn) = \$ 81mn - \$31 mn = \$50 mn.

Repeat orders: In case repeat orders are involved expected profit computation is as follows.

Expected profit = $P_1 (R_1 – C_1) – (1-P_1) C1 + P_1 [P_2 (R_2 – C_2) – (1-P_2) C_2] + ...$

Suppose the first deal with a customer involves \$400 mn in revenue and cost of sales \$310 mn. Given 'P_1'= 90%. The second deal with a customer involves \$600 mn in revenue and cost of sales \$500 mn. Given 'P_2'= 95%. R_1, R_2, etc are the revenues from 1st, 2nd deals, C_1, C_2 are the deal-wise costs, P_1, P_2, are the probabilities of payment made.

The expected profit = [0.9 (\$400mn-\$310mn) – 0.1 (\$310mn)] + 0.9 [0.95 (\$600mn-\$500mn) – 0.05 (\$500mn)] = [\$ 81mn - \$31 mn] + 0.9 [\$95mn - \$25mn]

= \$50 mn + \$63mn = \$ 113mn.

5.6 Exchange Rate Implications

In the analyses of evaluation of alternative credit policies, exchange rate changes will have to be considered when the invoicing currency is a foreign currency. If domestic currency is the invoice currency, no cognizance of exchange rate changes is needed. The revenue, the cost, the cost of capital, etc all will undergo changes when forex rate fluctuations are relevant.

6. LETTERS OF CREDIT

In global credit sales, credit worthiness of the importer, fulfillment of the order by the exporter and payment to exporter according to terms of the sales contract must be ensured. The importer and exporter cannot ensure the above by themselves. They can however, achieve the same with the involvement of banks which have the prestige of international acceptability.

Letters of credit is predominantly used by the banks in the process of facilitating cross-border sales transactions.

Letter of credit is a letter addressed to the exporter (seller) and signed by a bank acting on behalf of the importer (buyer) with the undertaking by the bank to ensure payment to the exporter if the exporter conforms to the conditions of the letter of credit (L/C).

6.1 Merits of L/C to Exporter

(i) Elimination of credit risk, due to default by importer
(ii) Elimination of payment risk due to exchange controls
(iii) Elimination of uncertainty

(iv) Elimination of pre-shipment risk of order cancellation

(v) Elimination of uncertainty of market for product.

6.2 Merits of L/C to Importer

(i) Surety of merchandise shipped conforms to specifications

(ii) Can command better credit terms

(iii) Only means of clinching a deal if exporter insists on L/C

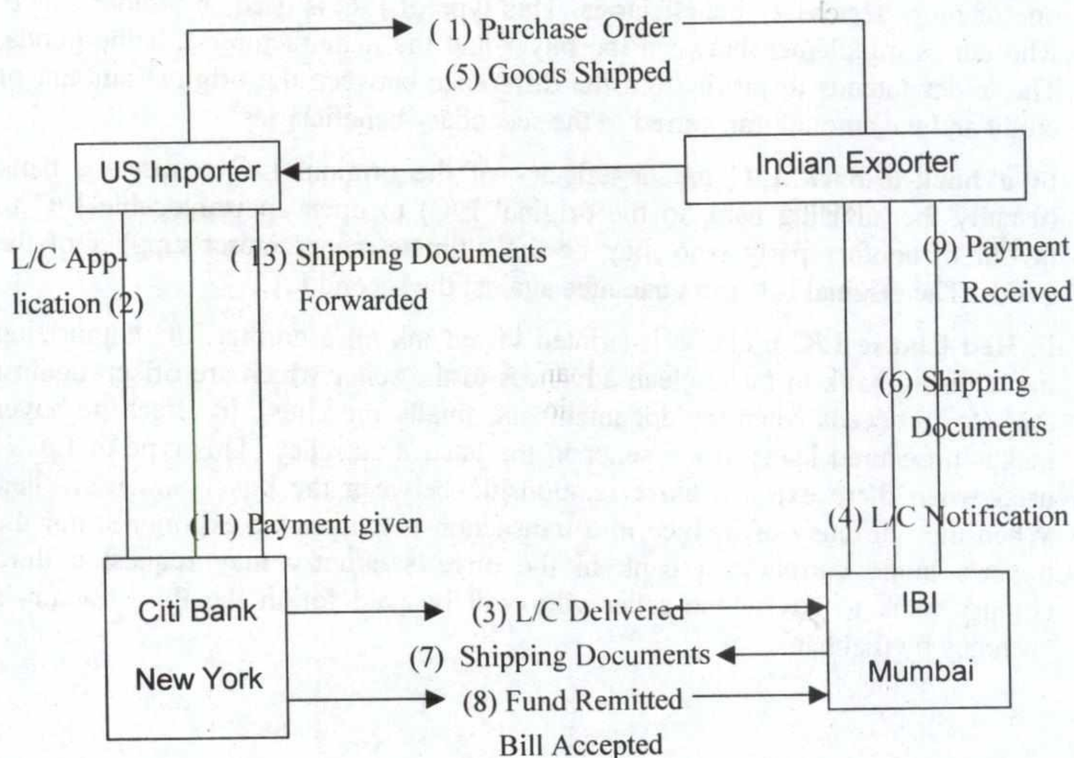
(iv) L/C does not involve lock up of fund, before supplies reach

(v) In case of advance payment, the money is with the importer's bank issuing L/C.

6.3 Mechanism of L/C

The mechanism of L/C is given in the diagram given below.

Diagram Depicting Mechanism of L/C



6.4 Types of Letters of Credit

Different types of letters of credits are in vogue. These are described below:

A Revocable L/C is issued by the issuing bank and contains a provision that the bank may amend or cancel the credit without the approval of the beneficiary. It provides least protection to the seller/exporter.

An Irrevocable L/C cannot be so amended or canceled without the Seller's prior approval. A confirmed Irrevocable L/C contains an extra protection; in addition to the issuing bank's commitment, a confirming bank adds its own undertaking to pay provided all conditions are met. The confirming bank (which may be but need not be the same as the advising bank) will pay even if the issuing bank cannot or will not honour the seller's draft.

A revolving L/C is used when the seller is going to make shipments on a continuing basis and a single L/C will cover several shipments. A transferable L/C permits the beneficiary to transfer a part or whole of the credit in favour of one or more secondary beneficiaries. This type of L/C is used by trader sellers who act as middlemen between the buyer and the manufacturers) of the goods. The trader intends to profit from the difference between the original amount of credit and the amount transferred to the secondary beneficiaries.

In **a back-to-back L/C** the beneficiary of the original L/C requests a bank (usually the advising bank to the original L/C) to open an irrevocable L/C in favour of another party who may be the ultimate manufacturer/supplier of the goods. The original L/C is a guarantee against the second L/C.

In **Red-Clause L/C** a clause is printed in red ink on a normal L/C authorizing the advising bank to make clean advances to the seller which are offset against the sales proceeds when the documents are finally presented. In effect the buyer makes unsecured loans to the seller in the latter's currency. This type of L/C is used when there exists a close relationship between the buyer and the seller. When the currency of invoice in a transaction is neither the exporter's, nor the buyer's home currency, a bank in the buyer's country may request a third country bank to advise the seller who will be paid for in the third country's currency by that bank.

6.5. Control on Accounts Receivables

As was earlier referred to the investment in accounts should be within accepted level. To achieve this, control measures are needed so that when actuals fall outside the prescribed range, corrective actions can be taken. In controlling accounts receivable certain techniques are adopted. Three such techniques are described below. These are: (i) Debtors turnover ratio, (ii) Debtors velocity, and (iii) Age of debtors.

Debtors Turnover Ratio (DTR)

Debtors turnover ratio refers to ratio of sales to accounts receivable (Sundry debtors plus Bills receivables). The accounts receivable may be closing figure, or average of year beginning and year-end figures or average of monthly opening and closing figures. An acceptable range for the ratio be fixed. Say a DTR of 5 to 6 times is fixed as ideal. When the actual ratio is within this band, it is all right. If the actual DTR is less than 5, it means more money is locked up in accounts receivables. Either sales have slumped relative to size of debtors, or debtors have risen to sales. If the ratio exceeds the upper hand, it means customers promptly pay willingly or buy over force. It is good. However, if more sales can be booked through relaxation should be considered.

Debtors' Velocity

Debtors' velocity refers to how many days sales are outstanding with the customers. This is given by: Accounts receivables / Per day credit sales. If fact, debtors' velocity indicates the average collection period (ACP). If the ACP is hovering around the credit period allowed, every thing is fine. If it exceeds the credit period allowed, it signals snag in our collection, or unattractiveness of cash discount allowed, which should be corrected. If ACP is less than credit period allowed, it can be considered as good, but behind it a very stringent collection policy or very liberal cash discount facility might be there. The exact cause and the desirability of its continuation needs to be examined. Debtors' velocity can be computed, this vary also, that is: Number of working days in the year / DTR.

Age of Debtors

Age of debtors refers how long debts are outstanding. Say 10% of accounts receivable is 6 months old, 15% is 5 months old, 25% is 4 months old, 25% is 3 months old, 15% is 2 months old and 10% is 1 month old. The average

age of debtors comes to: .6 + .75 + 1.00 + .75 + .3 + .1 = 3.5 months. An ideal breakup of accounts receivables can be established and actual position is monitored accordingly. The ideal average age and actual average age of accounts receivables can be compared and control is exercised on accounts receivables.

7. INVENTORY MANAGEMENT

Inventory takes different forms. Stocks of raw materials, work-in process and finished goods are prime inventory. Inventory is an important current asset, that every establishment engaged in production and are marketing has to carry. Inventory is the buffer between two related activities. Between purchase and production, between the beginning and completion of production, and between production and marketing buffers are needed. Buffer means a cushion to fall back on. Production should not suffer due to some difficulty in purchase of raw materials. Marketing should not suffer due to some difficulty in production. If the business has some stock of raw materials, a temporary difficulty in purchase will not affect production since the stock of raw materials can be used. If there is a stock of finished goods, marketing will not be affected due to any temporary hurdle in production. The stock of raw materials and finished goods, therefore serve as buffers absorbing the difficulties in purchase and production respectively. A business has to carry certain amount of inventory. Carrying too much or too little of inventory is bad as it involves avoidable cost. Inventory control is concerned with the deciding of the right quantity of inventory to be carried by businesses. You will see how this right quantity is determined in the course of this lesson.

7.1. Concept of Inventory Management

Inventory management refers to the planning and control of the size of the individual items of materials that are carried on by a business. Take any business firm-trading or manufacturing, many and diverse materials are dealt with / used the firm. Quite a lot of money is locked up in these materials carried as stock. Several factors account for this. The nature of the business, the size of the business, the seasonality of production/ consumption of the production, the seasonality of raw material availability, the terms of purchase/ sale, the length of the production cycle, the dependability of transport facilities, the inventory policy of the business, the costs of emergency action courses, the lead time and

the lead time consumption needs and the probabilities associated therewith etc., influence the size of inventory. To elaborate a little, trade and most manufacturing businesses, large businesses, seasonal businesses (like those in the manufacture of umbrellas, rain-coats, ice-cream, etc), business using raw materials which are available only during certain seasons (like flour mills, edible oil mills, etc), businesses which buy on cash and sell on credit terms, businesses with longer production cycle(where the time gap between beginning of the production process and its completion is more), businesses with uncertain transport infrastructure, businesses pursuing cautious inventory policy (which carry more stock relative to their level of operation), businesses where emergency purchases cost heavily, and businesses with large / fluctuating lead time and lead time requirements carry a higher inventory than other businesses.

Well, coming back to determination of the optimum size of inventory, due regard given to all the above said factors, different questions arise. These are: i) How much to order every time? ii) When to order or what is the reorder level? What should be the safety stock? What stock-out probabilities and levels are acceptable? Inventory management has to find optimal/satisfying answers to these, and, the size of inventory is thus determined.

The quantum of inventory carried depends on the motives of the organization. There are primarily three motives, namely transaction motive, precautionary motive, and speculative motive. Inventory carried in order to facilitate smooth running of day-to day operations is called *transaction inventory*. Inventory carried to meet uncertainties like spurt in demand, increase in rate of usage, delay in arrival of ordered inventory; etc comes in the second category namely *precautionary inventory*. When excessive inventory is held taking advantage of favourable price trends in the market, such excessive inventory is called *speculative inventory*.

Inventory requirements for meeting the transaction and precautionary needs can be planned with fair degree of accuracy given the rate of usage, lead time, and, the level of insurance against stock-outs that is considered prudent and other relevant information. With the help of these information the maximum, minimum and reorder levels of stock and the optimum quantity of stock to be ordered each time can be ascertained. The stock level and optimum order quantity plans help achieving the objective of the inventory management.

7.2. Importance of Inventory Management

Inventory forms a significant segment of current assets. For manufacturing processes a chunk their current asset is in inventory. For durable goods manufacturer's work-in-process constitutes a good portion of their current assets. In manufacturing businesses roughly 30% to 70% of current assets are in inventory of one form or other. In trading businesses the maximum range can even approach 100% and the minimum may never fall below 50% or so. So large funds are kept invested in inventory. As these funds are not free of costs and investible funds are limited, every business has to see that it carries only just enough inventory which must ensure that:

- the increasing demand of the customers is met,
- there is no lost sales (i.e., sales that could have been made but for stock availability) and there is no loss of consumer goodwill,
- the production operations go smooth,
- there is no pile-up of stock of any item and consequent loss due to obsolescence, theft, etc. and
- there is no lock-up of more than adequate capital inventory.

These objectives are conflicting. The first three objectives call for more investment to inventory, while the rest pull in the opposite direction. Herein the management has to play its role and balance these divergent objectives and set the optimal level of investment in inventory. Hence the significance of inventory management.

7. 3. Inventory Costs

There are three types of costs. These are: ordering costs (costs associated with placing orders), cost of materials and carrying costs. Ordering costs include cost of stationary, postage, telegram, etc in placing an order, and cost of administration of the purchase organization. Ordering costs are generally assumed to be fixed per order and directly proportional with the number of orders. Cost of materials is the purchase price, plus transport and insurance during transit and taxes if any. Carrying costs include space costs, storage costs, insurance, taxes, obsolescence, theft and pilferage, wastage and loss, the interest on capital lock-up, etc. If you carry more inventory there are also costs like high unit price for the inherent smaller order sizes, contribution on sales lost, cost of

lost consumer patronage, and so on. For any given level of inventory, these three components of inventory costs are present in some proportional-mix.

Inventory management aims at reducing both the ordering cost and carrying cost. As these move in opposite directions, minimizing the total of both these costs is the crux of the whole of inventory management exercise. Economic order quantity technique of inventory management is based on this minimization effect.

7. 4. Inventory Levels

Better inventory management is possible by setting up inventory levels like maximum level, reorder level and minimum level.

Maximum stock level represents the quantity of inventory beyond which the stock should never move up. Reorder level refers to the level of stock at which an order for replenishing the inventory has to be placed. Minimum level or safety level is the stock level below which the size of inventory should not normally fall. Lead time, lead time consumption and the economic order quantity (EOQ) determine these inventory levels. Lead time refers to the time lapse between order placement and receipt of goods. Lead time consumption refers to the requirement/demand during the lead time. Lead time is not a constant factor, neither lead time consumption is. So, minimum, maximum and average lead times and minimum, average and maximum lead time usage rates (per period) are found from experience. EOQ is a fixed quantity which is the square root of twice the per period (say a year) requirement of material times ordering cost per order divided by carrying cost of a unit of material per period (a year).

The different inventory levels are given by:

i. Reorder stock level = Maximum lead time x Maximum usage rate **OR** Minimum stock + (Average lead time x Average usage rate)

ii. Maximum stock level = Re-order level + EOQ - (Minimum lead time x Minimum usage rate)

iii. Minimum stock level = Reorder level - (Average lead time x Average usage rate)

iv. Average stock level = Minimum level + 1/2 of EOQ

v. Danger stock level = Minimum usage rate x Emergency lead time

8. TOOLS OF INVENTORY CONTROL

Several inventory management techniques are available. The above referred to EOQ and inventory levels are themselves some techniques of management of inventory under conditions of certainty and uncertainty. These are presented right now. Then the ABC control technique is presented.

8.1 EOQ Technique

hen an organization is operating under conditions of absolute certainty, inventory planning is relatively a simple affair. By `conditions of certainty', it is meant that the rate of usage of or demand for the item of inventory in question is stable, the lead time is fixed, and the supplier of the item is able to execute orders any time. When all these conditions are satisfied. It would be enough if the organization maintains adequate inventory for its transactional needs. In other words, there is no need to hold inventory for meeting contingencies. All that it needs to do is to determine the optimum reorder quantity and the reorder-level. Under certainty business conditions there is no need to carry any safety stock at all and the minimum stock level is zero. The maximum stock level shall be equal to the reorder quantity. To determine the optimum order quantity the costs of inventory are considered. Inventory holding involves two types of costs, namely, carrying costs and non-carrying costs. Whatever the level of inventory held there would involve certain amount of both these costs. Carrying costs refer to cost of capital locked up in inventory, space and storage, insurance, tax, etc. Non-carrying costs refer to ordering costs, lost sales, lost quantity discounts, etc. At optimal order quantity, the two costs together are the minimum.

Given the total quantity needed during a certain period of time be `A' units, the quantity to be reordered be `Q' units each time, the cost of carrying one unit of inventory being `C' rupees per period and the cost of placing an order be 'O' rupees, the total carrying costs would be QC/2and total ordering costs would be AO/Q.

At optimum order quantity the total inventory cost i.e., $\frac{AO}{Q}+\frac{QC}{2}$ would be the least. By differentiating $\frac{AO}{Q}+\frac{QC}{2}$ with respect to quantity and setting the same as equivalent to zero, we get,

$$(C/2) - \frac{AO}{Q^2} = 0, \text{ or } \frac{AQ}{Q^2} = \frac{C}{2} \text{ or } Q^2C = 2AO \text{ or } Q^2 = 2AC/C$$

The Q = Optimum Order Quantity = $\sqrt{2AO/C}$

Illustration 1: The annual usage is 36000 units, cost per unit is Rs. 100, cost of carrying one unit for one year is 20% of cost and cost of placing an order is Rs. 400.Find the optimum order quantity.

Solution: Optimum Order Quantity = $\sqrt{2AO/C} = \sqrt{2x36000x400/20} = 1200$

But in practice an organization cannot always stick to the optimum order quantity due to limitations of facility or restrictions on the size of orders imposed by the supplier or varying quantity discounts offered by the supplier depending on the size of individual orders. In all these cases the relative costs of all possible alternatives have to be found out before the decision is finally taken on the size of reorder quantity or the EOQ.

Illustration 2: Continuing the illustration 1 above, and assuming that the organization is having storage facility to accommodate only 1000 units but has facility to hire space to store additional 200 units at an extra cost of Rs. 2000 per annum, what is the right quantity to be ordered

Solution: The involves computing the total inventory cost for 1000 and 1200 units of order sizes as worked out below in Table 1:

Obviously the organization would fix its order quantity at 1000 units, though the unconstrained optimum order quantity is 1200 units originally. The cost saving is Rs. 1,600/- per annum.

Table 1: Computation of Costs under Alternatives

Items of cost	**Amount of Cost**	
	Ordering quantity	
	1000 units (Rs.)	**1200 units (Rs.)**
Ordering cost A/Q x O	14,400	12,000
Carrying cost Q/2 x C	10,000	12,000
Additional cost of facility, if hired	--	2,000
Total	24,400	26,000

Illustration: 3: Sometimes the supplier may stipulate that orders in multiples of say, 500 units only are acceptable to him. How is the EOQ computed?

Solution: In this case, the optimal order quantity is to be calculated ignoring the restriction and then the total cost of inventory is computed at ordering quantities satisfying the stipulation immediately above and below the optimal order quantity level. In our case of illustration 1, 1000 and 1500 units are the alternative ordering quantities in question below and above the optimum order size of 1200 units.. The cost computations are as under in table 2:

Table 2 Computation of Costs under Alternatives

Items of cost	Ordering quantity	
	1000 units (Rs.)	**1500 units (Rs.)**
Ordering cost A/Q x O	14,400	9600
Carrying cost Q/2 x C	10,000	15,000
Total	24,400	24,600

An order quantity of 1000 units is marginally economic.

Illustration 4: The supplier may quote differing prices for different order quantities. Let us assume that in our case the supplier quotes the following prices for different quantities of order given under:

Quantity ordered	*Price per unit (Rs)*
Less than 1000	*100.00*
1001 – 1500	99.90
1501 – 2000	99.75
2000 and above	99.60

Find the Economic Order Quantity.

Solution: The organization considers orders of sizes of 1000, 1200, 1800, 2000 and 2400 units. The computation of optimal order quantity is carried out below in table 3:

Table 3: Computation of Costs under Alternatives

Order Size(Q)	*Carrying cost = (Q/2) x Price x 20%)*	*Ordering cost = (A/Q xO)*	*Discount earned = (A x discount rate)*	*Net Cost= (2)+(3)-(4)*
(1)	(2) (Rs.)	(3) (Rs.)	(4) (Rs.)	(5) (Rs.)
1000	10,000	14,000	-	24,400
1200	11,998	12,000	3,600	20,388
1800	17,955	8,000	9,000	16,955
2000	19,950	7,200	9,000	18,150
2400	23,904	6,000	14,400	15,504

The optimum order quantity is that quantity level where the cost of carrying and ordering less the discount earned is the minimum (Discount earned = Annual purchases x Discount per unit). An order quantity of 2,400 units is the optimum level since the net cost is the least here, namely Rs. 15,504.

There is an alternative approach as well. We shall elaborate the approach with an illustration.

Illustration 5: Consider that a firm has been offered a discount schedule for the purchase of a component used in the production of the firm's main product. The cost of ordering is Rs. 250 per order, the annual average inventory carrying cost is 20 per cent, and the annual requirement is 3,000 units.. These details and the varying unit prices are as under.

Price break quantity	**Unit price (Rs.)**
1000 and over	13.50
750-999	15.50
500-749	17.00
250-499	19.00
1-249	20.00

Compute the optimum order quantity.

Solution: At the different prices EOQ values are computed. The discount schedule offered by the vendor along with the corresponding economic ordering quantities are as follows in table 4.

Table 4 : EOQ at Different Price Breaks

EOQ for each price	Price break quantity	Unit price (Rs.)
746	1000 and over	13.50
695	750-999	15.50
664	500-749	17.00
286	250-499	19.00
612	1-249	20.00

A series of comparisons are made between the economic order quantities and the lowest quantity offered for sale at each price break. We have to locate the first EOQ level which is greater than the minimum offer quantity in the given price breaks. In our case this first greater than condition is met with the price break quantity500-749 and the EOQ is 664 units. It is now necessary to calculate the annual inventory costs for this EOQ level and minimum price break quantities above this level. Thus, total costs must be computed for the following: 664, 750 and 1000 units.. These values are given in Table 5.. It can be seen that the total cost is lowest for the order quantity of 1000 units , at which level the unit price is the lowest at Rs. 13.50 . The Company should take the full advantage of quantity discounts by ordering 1000 units.

Table 5: Computation of total Costs for Selected Quantity and Price

Number of units	*Costs of goods (3000 annual units x unit price)*	*Inventory carrying costs (20% of Av. Inventory costs*	*Ordering costs (250 x Av. No. of orders per year)*	*Total costs*
	(Rs.)	(Rs.)	(Rs.)	(Rs.)
664	51,000.00	1128.80	1129.50	53,258.30
750	46,500.00	1162.50	1000.00	48,662.50
1000	40,500.00	1350.00	760.00	42,600.00

8.2 Stock Level Technique

When rate of usage and lead times are varying, then we say there is uncertainty (Other uncertainties like price fluctuations, seasonal factors, etc., are not considered). In such cases effective inventory management needs two factors to be satisfied, namely, investment in inventory does not exceed a certain limit and stock out situation does not arise. In other words, the maximum stock level and minimum stock level are to be scientifically fixed taking into account various factors. In situations of this nature, the maximum, average and minimum lead times and usage rates are first computed. Then the different levels of stock are determined. The formulas are already given.

Continuing our example given in the very beginning, let us assume the following as given in table 6.

Table 6 : Usage rates and Lead time

	Usage rate in units (UR)	Lead time in days (LT)
Maximum [MAX]	120	11
Average [AVR]	100	7
Minimum [MIN]	80	5

Assuming an opening inventory of 2000 units the order schedule, usage and inventory levels, under the most pessimistic, most optimistic and most likely levels of usage rate and lead time would be as given in Table 7. In the most pessimistic situation the stock level just prior to receipt of the reorder quantity is zero, but there is no stock-out. However, as stock level approaches `Zero' there is the potential danger of running out of stock. i.e. as it reaches the danger level, urgent measures to procure materials are called for. Investment in inventory is best utilized here. In the most optimistic case, the usage rate is less and the delivery of order quantity is most prompt, resulting in relatively maximum stock position throughout. There is more safety here, but at the same time there is piling up of the stock. In the most likely situation, there is neither fast depletion nor pile up of stock. Fair level of safety and turnover of stock are ensured.

It could be seen from the above that the end stock position is influenced by the consumption during the lead time i.e., (UR x LT). In the above analysis, three cases with varying levels of consumption having different impact on the

end stock are dealt. Other levels of consumption could be anything given by AVR LT x MAX UR, AVR LT x MIN UR, MAX LT x AVR UR, MAX LT x MIN UR, MIN LT x AVR UR or MIN LT x MAX UR. But in all these cases the consumptions would fall within the limits set by the most pessimistic and most optimistic situations. Hence, the organization will not run out of stock, though the stock carried may be slightly excessive in certain cases.

8.3 ABC Technique

Here, inventory items are analyzed into three categories on the basis of total annual cost of each item. `A' category consists of inventory items whose % value to total outweighs their % volume to total, i.e., value is more, several fold, than the volume, `C' category consists of inventory items whose volume outweighs their value, i.e., volume, is more, several fold, than value. The `B' category comes in the middle with moderate volume and moderate value. A rough and ready count would put that `A' category accounts for 70% or so of value but only 10% or so of volume, B category accounts for about 20% of value and 20% volume and `C' for 10% or so of value and 70% or so of volume. In the computation of volume percentage different authors adopt different methods. Some count the number of classes items while others take head-counts of individual items of all classes of inventory items held.

Table 7: Inventory Levels

	Details	*Most pessimistic situation*	*Most optimistic situation*	*Most likely situation*
1.	Assumption	Max. LT & Max UR	Min. LT & Min UR	AVR LT & AVR UR
2.	Opening stock	2000	2000	2000
3.	Less usage to recorder level	680 (reached in 5 days)	680 (reached in 8.5 days)	680 (reached in 6.8 days)
4. 5.	Recorder level [Max. LT & Max UR] (Now order is placed	1320	1320	1320

6.	Balance just prior to receipt of ordered quantity	0	920	620
7.	Add: Receipt of ordered quantity	1200	1200	1200
8.	Present stock position	1200	1200	1200
9.	Implication	Potential danger of running out of stock	Stock turn over is very small and cost of stock is more	Fair degree of usage and safety are assured
10.	Time of next order	Immediate , since present stock level is below recorder level	Relatively long after since the present stock level is the maximum level	After some breathing time since the present stock lies between the recorder level and the maximum

'A' category is subjected to closer planning and control. Least planning and control is attached to `C'. Regarding `B' category a via-media course is adopted. The reasons for this are not far to seek. By close control of `A' category inventory costs are reduced. Table 8 gives the planning and control approaches to the different categories.

ABC Control Technique

	Aspect	*A category*	*B category*	*C category*
1	**Nature**			
a	Total Value	High	Medium	Low
b	Volume	Low	Medium	High

2	**Order**			
a	Size	Low	Medium	High
b	Number	More	Medium	Few
3	**Storage**			
a	Care	Most	Medium	Less
b	Records	Complete	Some	Few
4	**Issue**			
a	Procedure	Stringent	Moderate	Lenient
b	Quantity	Low	Moderate	Large
5	**Overall**			
a	Planning	More	Medium	Low
b	Control	More	Medium	Low

9. SAFETY STOCK AND STOCK-OUT COST CONCEPTS : RISK AND UNCERTAINTY MODELS

Safety stock is the minimum stock which the business must carry so that no stock-out situation arises. If the inventory levels are set and adhered to stock-out situations (i.e., out of stock positions) would not arise. But in actual practice however some organizations would like to take the risk of running out of stock, by making a trade off between the costs of stock-out situations and the benefits of carrying lesser safety stock. A lesser safety stock level other than the one so far we considered may be followed by the organization. In determining this reduced level of safety stock, the costs of carrying different levels of minimum stock and the associated stock-out costs are taken into account. The least cost alternative is chosen. Principally there are two methods of calculating the optimum safety stock level. The first method assumes a fixed amount of stock-out cost irrespective of the level of shortage to stock and the second method assumes a varying amount of stock out cost depending on the extent of shortage in stock. The two methods are adopted here. With hypothetical figures the `modus operandi' of the two methods is explained. Curiously enough almost similar results are obtained, though the results need not necessarily be so.

9.1 Computation of stock-out costs and determination of optimal safety stock – Method I

In method I the stock-out costs are computed by taking into account the probabilities of stock-out at different levels of safety stock and the cost of stock out. The stock-out cost is assumed to be constant. The probability times the stock-out cost gives the expected stock-out cost. The logic of the assumption is that stock-out cost is constant per occurrence is maintained here since the efforts involved to replenish stock in the case of run-out situation are same irrespective of the quantity of shortage assuming that perfect market conditions are prevailing.

Illustration 6. Take a hypothetical stock-out cost of Rs. 40,000 per occurrence and with a probability distribution as given below. Compute optimal safety stock level ..

Safety Stock (S)	Probability of stock-out (P)
620	0.00
500	0.03
400	0.07
300	0.13
200	0.19
100	0.25
0	0.33
	1.00

Solution: For different levels of safety stock, the expected stock-out costs for different alternative levels of safety stock are computed in Table. The least cost safety stock level is 400 units.

Table 9: Cost Computation with a Cost of Carrying of Rs. 20 per unit and Stock-out cost per occurrence Rs. 40,000

Safety Stock	Probability of stock-out	Carrying Cost (SxRs. 20)	Expected stock-out cost (PxRs.40,000)	Total cost
(S)	(P)	(Rs.)	(Rs.)	(Rs.)
620	0.00	12,400	0	12,400
500	0.03	10,000	1,200	11,200
400	0.07	8,000	2,800	10,800
300	0.13	6,000	5,200	11,200
200	0.19	4,000	7,600	11,600
100	0.25	2,000	10,000	12,000
0	0.33	0	13,200	13,200
	1.00			

9.2: Computation of stock-out costs and determination of optimal safety stock –Method II

Method II assumes that stock-out costs vary with the quantity of stock-out and the probability of stock-out situations given the safety stock. The quantity of stock-out is equal to the excess of consumption during lead time over the normal consumption and the safety stock held. The point to be noted here is that safety stock is held to meet the excess in consumption over and above the normal consumption. In other words enough stock to meet normal consumption is always to be carried on and this stock is distinct from the safety stock.

Illustration 7: You are given the following rates of usage and lead time their probability factors . Stock-out cost per unit is Rs. 200. Compute the optimal safety stock.

	Consumption		**Lead time**	
	Units	**Probability**	**Days**	**Probability**
Maximum	120	0.2	11	0.25
Normal	100	0.6	7	0.5
Minimum	80	0.2	5	0.25

Solution:

Note that the usage and lead times are the same as those used in an earlier section of this lesson. The only addition is the probability factor. When the reorder point is fixed at 1320 units (i.e. normal consumption during normal lead time + Full safety stock level = 700 + 620 units) there is no stock-out at all, as it should be. When the reorder point is fixed at 1200 units (i.e. normal usage 700 + safety stock 500), the stock-out will be to the extent of 120 unit with a joint probability of .05, i.e., .2 x .25. With successive lesser safety stock, different levels of stock out arises with different joint probability factors. **Table 10** gives these figures in detail.

Now the cost of stock-out has to be ascertained. The stock-out cost per unit of shortage is given as Rs. 200. It may be noted that stock-out cost per unit shortage is more as it causes stoppage of production, loss of customer goodwill, closure and resetting of production, and so on. Fixed expenses cannot be cut, though no utility is derived from them during the period. Hence stock-out cost per unit of shortage is much more than the cost of a unit of inventory. In manufacturing under-takings this is largely the case. In trading concerns the stock-out costs may be lower. **Table 11** gives the details of cost computation.

Table:10 : Extent and Probability of Stock-out

Safety stock (S)	Corresponding recorder point = (700+S)	Lead time requirement (Cases exceeding Col.2 only)	Extent of stock-out	Probability of stock-out
620	1320	Nil	Nil	--
500	1200	1320	120	.05
400	1100	1320	220	.05
300	1000	1320	320	.05
		1100	100	.15

200	900	1320 1100	420 200	.05 .15
100	800	1320 1100 880 840	520 300 80 40	.05 .15 .05 .1
0	700	1320 1100 880 840	620 400 180 140	.05 .15 .05 .1

The carrying costs are obtained as usual, namely Safety stock x Rs. 20. The least cost alternative is found to be 400 units of safety stock. In the first method also we got the same result, though the two approaches may differ in the result.

Table 11: Cost Computation for Different Levels of Safety Stock

Safety Stock	**Expected stock-out cost**	**Carrying Cost (SxRs. 20)**	**Total**
(S)	(Rs.)	(Rs.)	(Rs.)
620	0	12,400	12,400
500	1,200	10,000	11,200
400	2,200	8,000	10,200
300	6,200	6,000	12,200
200	10,200	4,000	14,200
100	15,800	2,000	17,800
0	22,800	0	22,800

9.3. Sales Inventory control

Sales inventory is the inventory of items meant for sale. How much of such inventory be produced every time? In other words, what is the optimum production run? What is the scheduling period? What is the minimum beginning period inventory? what is the minimum total expected annual cost? These are relevant questions.

These questions can be answered provided we are given the following: Annual Requirement , R, cost of holding one unit of inventory , C1, shortage cost per unit per time C2 , set up cost, Cs, and time period , T. The optimum order quantity, Q is as shown below:

$$Q = \sqrt{\frac{2RC_S}{TC_1}}\sqrt{\frac{C_1 + C_2}{C_2}}$$

The first part of the above formula is the same as the EOQ formula, except that notations are changed. Actually, Cs in the above formula is only the ordering cost , O, in the usual EOQ formula and TC1 is simply the C in the usual formula. The second part in the formula is new addition.

The optimum opening inventory level , S, is computed as below:

$$S = \sqrt{\frac{2RC_S}{TC_1}}\sqrt{\frac{C_2}{C_1 + C_2}}$$

The optimum scheduling period, Ts, is computed as follows:

$$t_S = \sqrt{\frac{2TC_S}{RC_1}}\sqrt{\frac{C_1 + C_2}{C_2}}$$

The optimum total cost, $TC_{.opt}$. It is computed as follows:

$$TC_{opt} = \sqrt{2RTC_1C_2}\sqrt{\frac{C_2}{C_1 + C_2}}$$

Illustration 8: A manufacturer has to supply his customer with 24.000 units of his product every year. This demand is fixed and known. Since the unit is used by the customer in an assembly-line operation, and the customer has no storage space for units, the manufacturer must supply a day's requirement each day. If the manufacturer fails to supply the required units, the shortage cost is Rs. 2 per

unit per month. The inventory carrying cost is Rs. 1 per unit per month, and the set-up cost per run is Rs. 3500. Determine the optimum run size (Q), the optimum level of inventory (S) at beginning of any period, the optimum scheduling period ,Ts, and the minimum total expected relevant yearly cost (TC).

Solution: We are given the following data:

T = 12 months

R = 24,000 units

C1 = Re. 1 per unit per month (Cost of holding one unit of inventory)

C2 = Rs. 2 per unit per month (Shortage cost per unit per time)

Cs= Rs. 3500 per run (Set-up Cost)

We know the formula for all the relevant values to be computed. Let us apply them as below and get the values.

Furthermore, using optimum policy, the expected number of shortages at the end of each scheduling period would be 4578 - 3056 = 1522 units.

$$Q = \sqrt{\frac{2RC_S}{TC_1}}\sqrt{\frac{C_1+C_2}{C_2}} = \sqrt{\frac{2X24000X3500}{12X1}}X\sqrt{\frac{1+2}{2}}$$

$$= 4578 \text{ units per run}$$

$$S = \sqrt{\frac{2RC_S}{TC_1}}\sqrt{\frac{C_2}{C_1+C_2}} = \sqrt{\frac{2X24000X3500}{12X1}}X\sqrt{\frac{2}{1+2}}$$

$$= 3056 \text{ units}$$

$$t_S = \sqrt{\frac{2TC_S}{RC_1}}\sqrt{\frac{C_1+C_2}{C_2}} = \sqrt{\frac{2X12X3500}{24000X1}}X\sqrt{\frac{1+2}{2}}$$

$$= 2.29 \text{ months or 9.9 weeks}$$

$$TC_{opt} = \sqrt{2RTC_1C_2}\sqrt{\frac{C_2}{C_1+C_2}} = \sqrt{2x24000x12x1x3500}x\sqrt{\frac{2}{1+2}}$$

$$= Rs.36,660$$

9.4. Optional Replenishment System

There is another class of inventory control system known as option replenishment system or **"S-s"** policy. This system is a combination of perioc

(replenishment) inventory system, with the basic feature of fixed quantity inventory system. Optional replenishment system is useful in situations where the cost of reviewing the inventory is high and/or the cost of ordering is very significant. When the stock on hand and the stock on order falls below a certain level, say s, then an order is placed to bring the stock up to a level, say S. Thus, s indicates the reorder point and S denotes the desired inventory level. If perpetual records cannot be maintained, due to high costs, then a periodic review can be made. At the time of review, the inventory on hand is compared with s and S. If the level is lower than s, an order is placed. Otherwise, no order is placed. The review time also influences the reorder point s. The above stated rule of operation is briefed below:

Place an order for q wherever $S_o + q_o < s$. where

$q = S - S_o - q_o$

and S = replenishment level

S_o = stock on hand

q_o = outstanding quantity against previous orders

s = reorder point

Otherwise do not order.

9.5. Probabilistic Inventory Model

The probabilistic model takes demand as a random variable. The solutions for problems here use the notations as below: S- Selling price per unit, C- unit cost of the inventory item; C1 - unit cost of over-ordering, (opportunity loss associated with each unit unsold), Cs – unit cost of under-ordering (loss due to not meeting the demand,) , Cp- cost of shortage(that is loss of goodwill) V- salvage value per unit, Pc – critical probability, and Ch – cost of holding. With these critical probability is calculated, based on which units order size decided.

Illustration 9: A trader stocks a particular seasonal product (say woolen sweaters) at the beginning of winter and cannot reorder. The item costs him Rs. 25 each and he sells at Rs. 50. For any item that cannot be met on demand, the trader has estimated a good will cost of Rs. 15. Any items unsold will have a salvage value of Rs. 10. Holding cost during the period is estimated to be 10 per cent of the item cost. The probability distribution of demand is given in below. Determine the optimal number of items to be stocked.

Units stocked (in hundreds)	Demand probability P(D=q)	Cumulative probability P(D□q)
2	0.35	1.00
3	0.25	0.65
4	0.30	0.40
5	0.15	0.20
6	0.05	0.05

Solution: From the given details, we can write $S = 50$, $C = 25$,

$C_h = 0.10 \times 25 = 2.5$, $V = 10$, $C_p = 15$.

$$C_1 = C + C_h - V$$
$$= 25 + 2.5 - 10 = 17.5$$
$$C_s = S - C - \frac{C_h}{2} + C_p$$
$$= 50 - 25 - \frac{2.5}{2} + 15$$
$$= 38.75$$

and $$P_c = \frac{C_1}{C_1 + C_S} = \frac{17.5}{17.5 + 38.75} = 0.31$$

Looking at Table 12 (column 3), the lowest cumulative probability which exceeds Pc is 0.4, and therefore, the optimal number of units to stock is 400 units. With the help of the above numerical values, we can evaluate the expected net gain from stocking as the number of units stocked is increased from 200 to 600. This is given in Table 12.

Table 12: Computations of loss and gain

Units stocked	*Cumulative demand P(D□q)*	*Expected incremental loss*		*Expected Incremental gain=(col.3 – col.4)*
		Of under ordering *□L'=C_sP(D□q)*	***Of over ordering*** *□L=C_lP(D□q)*	
200	1.00	38.75x1.0=38.75	17.5x0 = 0	38.75
300	0.65	38.75x0.65=25.19	17.5x0.35 =6.13	19.06
400	0.40	38.75 x0.4 =15.50	17.5x0.6 =10.50	5.00
500	0.20	38.75 x0.2= 7.75	17.5x0.8 =14.00	-6.25
600	0.05	38.75 x0.05= 1.94	17.5x0.95 =16.63	-14.69

From Table 12, we can state that up to the 400th unit, each additional unit stocked results into a net incremental gain, while the 500th and 600th units stocked result into an incremental loss. Therefore, it is uneconomical to stock either 500 or 600 units.

10. OUTSOURCING AS A METHOD OF INVENTORY MANAGEMENT

Outsourcing involves buying components/services from outside sources rather than marking the same by the business unit concerned. Traditionally, this is the case of "Make or Buy". When we can mark make? When we should buy? What are the inventory issues involved?

10.1 Issues

When we make components, sourcing raw materials therefor, obtaining or developing the process of conversion, scheduling and carrying production operations and managing inventory of raw materials. work in process and finished components are the tasks involved.

Are we competent enough to carry out all these? Do we have core competence in all process?

What is the capital invested? What is the opportunity cost of capital? Does production add to our overall competence?

If the answer to the last question is not a definite and spontaneous O.K. we have to think of outservicing.

10.2 Advantages of Outsourcing

Outstanding can render several advantages. These are: i) Wide choice to pick and choose a supplier, ii) quality standards can be prescribed for supplied components, iii) price breaks can be negotiated when bulk orders are placed with the suppliers, iv) supplier's core competence may outsmart our own competence in that line, v) efficient supply chain management can be created through effective networking, including e-net, vi) even global supplier sources can be thought of, vii) Just-in-time inventory can be thought of, viii) investment in component manufacturing business is fixed and opportunity cost saved, ix) no need for elaborate inventory management and x) business partnership is spread out and that support base is enhanced,

10.3 Disadvantages of Outsourcing

Outsourcing has its own share of disadvantages as well. First, the dependability factor. Second, loyalty factor - as the component may be sources by our competitors. Third, cultural alliances may be difficult to happen between ourselves and the supplier. Fourth, outsourcing repairs a great scale of 'open' business culture and this may not be advisable in certain contexts, fifth, there may be temptations to stock-pile when disruptions in supply in the future is feared and this may add to the inventory holding costs.

10.4 Outsourcing has Come to Stay

Outsourcing is the natural way of doing business on the basis of comparative advantages emerging out from specialization. Take any product - durable or non-durable, industrial or consumer. Can all be manufactured by one and the same ''manufacturer who is rolling out the product into the market? No; Never. Only the 'core' of the product is made, the non-core parts are outsourced. This makes business sense. Businesses seek advice from consultants. This is outsourcing of critical knowledge, when you have your own body of paid executives. Transportation service is generally outsourced. Warehousing facility is also outsourced. These two constitute a great part of what is called as 'logistics'. Now logistics is outsourced.

Outsourcing greatly reduces inventory related tasks with respect to raw material and work in progress involved in manufacture of the outsourced component. This is a great relief for businesses,

In the context of MNCs subsidiaries all over, outsourcing can be effected amongst the subsidiaries or from others. Outsourcing among subsidiaries can be used as a transfer pricing mechanism with inherent advantage of the leverage and fund transfer.

10. 5 Overseas Production

There are three aspects in overseas production.

First, instead of procuring from third party suppliers in a different country, set up own production plant in that country and start producing the product/components. Is there a case for this? Perhaps there is one. The third country might have some core advantage in respect of the product or component in question. By setting up the MNC's plant over there in that country, access to the core competence can be gained and reaped to the advantage of the MNC group. The new-outfit can be 100% subsidiary of the MNC. And transactions among the MNC affiliates can give transfer pricing, lead-lag and tax-haven advantages also. MNCs crave for spreading out all over. And this thirst is quenched now. From buyers status, the MNC improves to one of maker. The MNC's brand equity is thus extended.

The inventory implications are: i) inventory tasks are increased; ii) but cultural alliances get unified; iii) greater coordination is established, because MNC's own arm is now the supplier; iv) lead time can be reduced; v) operating with less inventory is possible because the outsider dependency is replaced by own outfit cooperation.

Second, overseas production or off-shore production can also be effected if the off-shore point is your market place too. This is lifting the production base to the place of market itself with all attendant advantages.

The inventory related advantage is the reduction in lead time in sending finished products to overseas market place and opportunity cost of capital locked up.

Illustration 1: Bull Car Crop of Japan is considering to locate a factory abroad in Chicago. Labour cost would rise by Yen 33000 per car, in transit time for cars to be sold in US will reduce by 65 days. Bulls sell for Y 1650,000 and its cost of capital is 12.5%. Is shifting the production to US prudent?

Solution:

Inventory cost saving per car	=	¥ 1650,000 x (65/365) x 0.125
	=	¥ 36729
Additional labour cost (given)	=	¥ 33000
Cost saving	=	¥ 3729

It is worthwhile to shift production as, a gain through inventory cost is greater than rise in labour cost per unit.

Third one is shifting production overseas, but consumption is at home. This will lead to longer lead time. But, overseas production may give great cost advantages.

Illustration 2: Hightech Circuits of US wants to shift production of its expensive integrated circuits to Singapore. The cost of one integrated circuit is $ 22. Offshore assembly in Singapore would involve 48 cents labour cost saving per circuit But shifting production to Singapore will increase supply lead time to consumers to 5 weeks from the present one week involved in domestic production. Four weeks' additional inventory has to be carried. Off-shore production involves combined shipping and custom duty costs of 3.2 cents. Hightech's cost of capital is 15%. Is it good to shift production overseas?

Solution

The production cost at overseas plant:	$21.52 ($22-0.48)
Add: Shipping & customs duty	0.032
	21.552
Lead time inventory cost for 5 weeks	0.311
(22.552x0.15x5/52)	**21.863**
Home production cost per piece	22.000
Add: Lead time inventory cost for one week	0.049
@ 15% p.a. (22X0.15x1/52)	**22.049**

The cost saving in shifting production overseas is $22.049 minus 21.813 = $ 0.186 or 18.6 Cents.

Questions

1. Present the meaning and objectives of credit management.
2. What is a credit policy? What are credit policy variables?
3. Present the pros and cons of liberal and stringent credit policies.
4. What is collection policy? How is it significant?.
5. How do you evaluate alternative credit policies?
6. Explain the concept, merits, mechanism and types of Letters of Credit.
7. Present the concept and scope of inventory management.
8. Give an overview of inventory techniques.
9. Explain outsourcing and the implications of outsourcing for inventory management.
10. Explain the different aspects of shifting production overseas and their inventory management implication.
11. Asses the cost and benefits of overseas production from inventory management's view point.
12. A Manufacturing Company wishes to determine the most economic order quantity for one of its products. Manufacturing cost amount to Rs. 15 per unit, the production is 5000 units per annum. Each new lot requires a set-up cost of Rs. 25, and the inventory carrying cost is 25 per cent of the average inventory value. What is the most economic lot size to manufacture? What is corresponding total yearly cost?
13. A soft-drinks manufacturing company buys a large number of pallets every year which it uses in the warehousing of its bottled products. A local vendor has offered the following discount schedule for pallets:

Order quantity	**Unit price**
1 – 499	Rs.10.00
500 – 749	Rs. 9.25
750 and above	Rs. 8.75

The average yearly replacement is 2400 pallets. The cost per order is Rs. 100 and its carrying costs are 12 per cent of the average inventory. What quantity should be ordered?

14. A corporation purchases 1000 kg bags of lime for use in water treatment process. The number of bags used per day varies with the water consumption by the citizens and past records have yielded the following data:

Usage during past recorder period (no. of bags)	**Number of items this quantity was used**
250	9
300	20
350	15
400	3
450	2
500	1

Normal lead time is 7 days and the average usage per day is 50 bags. Inventory cost is Rs. 20 per bag per year and being out of stock necessitates buying at a regular price of Rs. 50.00 per bag. The optimum order per year are 18. Determine the optimal reorder point.

15. A newspaper boy buys weeklies for Rs. 3 each and sells them for Rs. 5 each. He can not return unsold weekly. Weekly demand has the following distribution:

No. of customers	23	24	25	26	27	28	29	30	31	32
Probability	.01	.03	.06	.10	.20	.25	.15	.10	.05	.05

If each weeks' demand is independent of the previous week, how many weeklies should be ordered each week?

16. Explain the concept and merits of ABC control technique of inventory management.
17. Present the stock-out cost technique in inventory control.
18. Explain the model of optional replenishment inventory model.
19. What is the relevance of the probabilistic inventory control method?
20. Explain the use of stock levels technique of inventory management.

UNIT–VI

INTERNATIONAL BUSINESS FINANCING AND COST OF CAPITAL

Learning Objectives: To know
i. An overview of financing methods ii. Features of equity capital iii. Types of international equity financing : Features and mechanism of GDRs and ADRs iv. Features of debt instruments v. Types or forms of debt instruments vi. Concepts, Computation and uses of cost of capital vii. Concept of Capital Structure viii. Determinants of Capital Structure ix. Optimal Capital Structure x. Theories of Capital Structure xi. Flow Analysis of Global Debt and Equity.

1. OVERVIEW OF FINANCING METHODS

Long-term capital may be: i. debt or equity, ii. internal or external, iii. fixed capital or working capital, iv. privately raised or publicity ranged, v. raised in the domestic capital market or in the global market and vi. raised from institutional agencies or from public at large.

Debt capital is contributed by creditors of a business unit on the promise of regular debt-servicing. Equity capital is provided by owners of a business unit on the hope of perpetual growth, dividend and other benefits. Internal capital is generated from profits and surplus ploughed back into business. External capital is raised from financial markets constituted by institutions and new-issue markets. Long term capital may be raised privately from select high-net-worth individuals/institutions or from public by issuing prospectus and conducting road-shows. Long-term capital can be raised domestically, i.e., within the national boundaries or globally from global capital markets. Of late, the

tendency is for going global. This is so as globally the financial markets are getting integrated. Institutional capital refers to capital raised from national / international / multilateral institutions, while public capital is capital raised from large number of retail - savers/investors, i.e., the general public.

2. FEATURES OF EQUITY SHARE CAPITAL

The total number of shares that the firm's charter has authorized is referred to as authorized shares. If a firm wishes to issue more shares than are authorized, it is necessary for shareholders to alter the Charter, which takes time. So to provide flexibility of granting shares options, pursuing mergers and splitting the shares, companies usually like to have magnified sum of capital as authorized but un-issued. When authorized ordinary shares are offered for sale, they become issued shares. Subscribed shares are the number of shares issued that are actually subscribed by individuals or institutions. Ordinary share capital is non-refundable, but a corporation can buy back parts of its issued shares which are known as treasury shares.

2.1. Par or No Par Value

In some countries shares with par value alone are issued. The par value of a share is an amount for which a minimum figure is set in the Articles of Association or Memorandum of Association. The share must not be issued for less than par value because shareholders will be personally liable to creditors for any deficiency, in the event of insolvency. A share has a certain nominal value or face value or par value which indicates the extent of interest in and liability of the shareholder to the company.

When a corporation has a substantial par value for its share, financing by ordinary shares may be blocked for a good amount of money will be needed to buy even a small number of stones. So there is a tendency to keep the par value at fairly low figures relative to their market value.

In the United States and Canada, shares are issued by many companies without par value. The capital of a company is divided into a certain number of shares having no specified denomination. The share certificate just states the number of shares held by the shareholder without mentioning the face value of the shares. The dividends are not given as a percentage of the par value of each share but instead, they are paid at a given rate per share as there is no par value to be used as a base for percentage. Issuing of such shares gives freedom to

directors in pricing a new issue for sale. In this case, a new issue for the share is carried on the books at the Market price at which it is sold, or at some stated value.

2.2 Book Value, Market Value and Liquidation Value

When only one class of shares is outstanding, the book value is the sum of the Capital stock and the Surplus account. The **book value per share** is the above total sum divided by the number of shares outstanding. When preference shares exist the book value of a company's shares is the net worth of a corporation less par value of preference shares outstanding. If the corporation's net worth is $3,10,00,000 and the par value of the preference shares is 1,00,00,000 and the number of equity shares are 10,00,000 then the book value of a share is

$$\frac{3,10,00,000 - 1,00,00,000}{10,00,000} = \$21$$

The **market value per share** is the current price at which the share is sold. The market value of ordinary shares often differ considerably from the book value because it reflects a varying evaluation of prospective earnings and dividends which the business is expected to produce as a going concern. Investors are interested in the book assets because they appear to throw some light on the earnings power of the company.

Liquidation value is the value that a company's share will command when the company is wound up. Theoretically the book value of a share should correspond to the liquidation value of the company only if the assets of a corporation can be liquidated for the book values shown in the financial statement. This is not possible because many of the assets can be liquidated only at distress prices.

2.3. Equity shares give rights to holders

i. Right to dividend; ii. Voting power; iii. Proxies; iv. Right to examine books and v. Purchase of ordinary shares by privileged subscription.

1) **Right to dividend:** Common stockholders are entitled to share in the earnings of the company only if cash dividend is paid. Stockholders

prosper from the market value appreciation of their stock, but they are entirely dependent upon the board of directors for the declaration of dividends. Stockholders have no legal resource to a company for not distributing profits. Only if Management, the board of directors, or both are engaged in fraud, shareholders can take their case to court and possibly, force the company to pay dividends.

2) **Voting powers;** In as much as the common stockholders of a company are its owners, they are entitled to elect a board of directors. In a large corporation stockholders usually exercise only indirect control through the board of directors they elect. The board in turn selects the management and management actually controls the operations of the company. There are may be times when the goals of management differ from those of the common stockholders. The only recourse for stockholders or management is through the board of directors. Because common stockholders often are widely dispersed geographically and therefore, disorganized management can often exercise effective control of a large corporation even if it controls only a small percentage of the stock outstanding.

3) **Proxies:** Each common stockholder is entitled to one vote for each share of stock he owns. Because more stockholders do not attend the annual meeting, they may vote by proxy. A proxy is simply a form by which the stockholder assigns his right to vote to another person or persons. Prior to the annual meeting management solicits proxies from stockholders to vote for the recommendations of directors and for any proposals requiring stockholder approval. If the stockholders are satisfied with the company they generally sign the proxy in favour of management, giving written authorization to management to vote their shares. If a stockholder does not vote on his shares, the number of share voted at the meeting and the number needed to constitute a majority are lower. Because of the proxy system and the fact that management is able to mail information to the stockholder at the company's expense, management has a distinct advantage in the voting process. As a result it usually is able to perpetuate existing practices if it so chooses.

4) **Right to examine books:** A stockholder legally is entitled to inspect book and records of a corporation. However, this access is limited, for

most corporation feel that the audited financial statement is sufficient to satisfy the requirement. Stockholders are also entitled to a list of stockholders of the corporation and their address.

5) **Sale of Ordinary Share by Privileged Subscription:** The holder of ordinary shares often has the preemptive right to subscribe to new shares before they are offered to outsiders: This is called privileged subscription. If the company issues additional ordinary shares, existing shareholders must be given the right to subscribe to the new stock so that they can maintain proportionate control and interest in the company. Suppose an individual owns 50 shares of a company and the company decides to increase the number of shares outstanding by 10% through a new common stock offering. If the stockholder has a preemptive right he must be given the option to buy 5 additional shares so that he can preserve his proportionate ownership in the company even after the issue of additional shares.

2.4. Corporate Corpus

There is no company without equity share capital. Equity or ordinary share capital constitutes the corpus of the corporation. This is the nucleus of the company. No company can exist without equity capital. It is the perpetual capital. It is the risk-absorbing capital. It has no legal servicing cost.

2.5. Market for equity shares

A company will be happy, if it can float its equity shares at ease and at a lucrative price. But this depends on the fundamentals of the company, the performance (past and/or projected) of the company, investors' opinion about the company, capital market conditions, political environment, and so on. Now that the global capital market is integrated, it is easier for a company to raise equity capital. But the potentials of the company must be good enough to woo good amount of subscribers to the capital of the company. Large firms with brand and corporate names find the going easy, while small ones find it difficult. This is the era of competition, where only the market might matters.

2.6. Evaluation of equity capital

The advantages and disadvantages of equity capital are dealt here.

2.6.1. Advantages of Equity Share Capital

- It represents permanent capital. Hence, there is no problem of refunding the capital. It is repayable only in the event of company's winding up and that too only after the claims of preference shareholders have been met in full.
- Long gestation projects can be funded through equity share capital.
- Equity share capital does not involve any fixed obligation for payment of dividend. Payment of dividend to equity shareholders depends on the availability of profit and the discretion of the Board of Directors of the company.
- Equity shares do not create any change on the assets of the company and the assets may be used as security for further financing.
- Equity share capital strengths the creditworthiness of the company. In general, other things being equal, the larger the equity base, the higher the ability of the company to secure debt capital
- Equity shares help capitalisation of profits by issue of bonus shores.
- Equity share capital is risk-absorber as it is permanent with no obligation to pay dividend.
- It is easier to issue equity shares when boom market conditions prevail.
- Equity share holders enjoy voting rights, right to rights issue subscription and the like.
- Business with fluctuating return on investment over time, can benefit by financing through more equity shares.

2.6.2. Disadvantages of Equity Shares Capital

- The cost of issuing equity capital is generally higher than the cost of issuing preference shares or debentures since on account of higher risk, the expectation of the equity share holders is also high as compared to preference shares or debentures, underwriting commission, brokerage costs and other issue expenses are high for equity capital.
- Equity dividend is payable from post-tax earnings. It is not deductible as an expense from the profit for taxation purposes.
- The issue of equity capital causes dilution of control of the equity holders.

- In times of depression dividends on equity shares reach low ebb which leads to drastic fall in their market value.
- Excessive reliance on financing through equity shares reduces the capacity of the company to trade on equity. The excessive use of equity shares is likely to result in over capitalization of the company.
- Equity shares attract only those classes of investors who can take risk. Conservative and cautious investors are reluctant to subscribe to equity issues.
- Equity shares doe not give a steady return to holders.
- Market value of equity shares fluctuates widely. So valuation of equity shares is difficult and that pledging them as collateral is difficult.

3. TYPES OF INTERNATIONAL EQUITY FINANCING

International equity offering generally takes any one of the two forms, viz, i. Dual syndicate equity offering, where the equity offering is split into overseas and domestic tranches and each is handled by separate lead managers and ii. Euro-equity offering where one tranche is placed overseas and managed by one lead manager. GDRs, ADRs and IDRs (Global, American and International Depository Receipts).

3.1. Global Depository Receipts

A Global Depository Receipt (GDR) is a dollar denominated instrument traded on a stock exchange in Europe or the US or both. It represents a certain number of underlying equity shares.

The shares are issued by the company to an intermediary called the depository in whose name the shares are registered. It is the depository which subsequently issues the GDRs. The physical possession of the equity shares is with another intermediary called the custodian who is an agent of the depository. Thus while a GDR represents the issuing company's shares, it has a distinct identity and in fact does not figure in the books of the issuer.

The concept of GDRs has been in use since 1927 in Western Capital Markets. Originally they were designed as an instrument to enable US investors to trade in securities that were not listed in US Exchanges in the form of American Depository Receipts (ADRs). Issues traded outside the US were called International Depository Receipt (EDR) issues.

3.1.1. Trend in GDRs

Until 1983, the market for depository receipts was largely investor driven and depository banks often issued them without the consent of the company concerned. In 1983, the Securities and Exchange Commission (SEC) of the US made it mandatory for certain amount of information to be provided by the companies.

Till 1990, the companies had to issue separate receipts in the United States (ADRs) and in Europe (IDRs). Its inherent weakness was that there was no cross border trading possible as ADRs had to be traded, settled and charged through DTC (an international settlement systems in the US) while the IDRs could only be traded and settled via Euroclear in Europe.

In 1990, changes in Rule 144A and Regulation 5 of the SEC allowed companies to raise capital without having to register the securities within the SEC or changing financial statements to reflect US accounting principles. The GDR evolved out of these changes.

Under Rule 144A, the purchaser may offer and resell those securities to any Qualified Institutional Buyer (QIB). If:

- the securities are not the same class as securities of the issuer quoted in NASDAQ or listed on a US Stock Exchange;
- the buyer is advised that the seller is relying on Rule 144A; and
- unless the issuer is a reporting company or is exempt from Exchange Act registration under Rule 12g 3-2(b), the buyer, upon request, has the right to receive at or prior to the time of sale, specific financial statements of the issuer and information as to its business.

In view of the foregoing, it is permissible for a foreign private issues to sell its shares through an underwriter into the US provided the shares are eligible for Rule 144A treatment and US market is limited to QIBs. To accomplish this, the underwriter would purchase the securities from the issues in a transaction exempt from the Registration requirements of the Securities Act and relying upon Rule 144A, resell those securities to QIBs in the US.

A leading South Korean trading company, Samsung Co. Ltd. which floated a truly global instrument in December 1990, tradable both in Europe and

in the US, set the trend for GDR issues. The GDR issue allowed the company to raise capital both in US and Europe simultaneously through one security.

Depository Receipts (DRs) are offered for subscription as under:

(a) Un-sponsored : Issued by one or more Depositories in response to market demand. Today this is obsolete.

(b) Sponsored : This is prominent today thanks to flexibility to list on a national exchange in the US and the ability to raise capital.

1) **Private Placement** (144A) **DRs:** A company can access the US and other markets through a private placement of sponsored DRs. In this a company can raise capital by placing DRs with large institutional investors and avoid registering with the SEC. The National Association of Securities Deal (NASD) of the US has established an Electronic Trading System similar to NASDAQ, called PORTAL within which Rule-144A eligible securities approved by NASD for deposit may be traded by QIBs.

2) **Sponsored Level** - DRs: This is the simplest method for companies to access the US and non-US capital markets. Level-1 DRs trade on the OTC market and as a result the company does not have to comply with US Generally Accepted Accounting Principles (US GAAP) or full Securities and Exchange Commission (SEC) disclosures. Under this, companies enjoy the benefits of a publicly traded security without changing the current reporting process.

3) **Sponsored** Level D and III DRs: Companies that wish to either list their securities on an exchange in the US or raise capital, use sponsored Level II and III DRs respectively. Each level requires different SEC registration and reporting plus adherence to US GAAP. The companies must also meet the listing requirements of the National Exchange or NASDAQ whichever it chooses.

3.1. 2. Parties to GDRs

The key parties involved in a GDR issue apart from the issuing company are:

1) **The Lead Managers:** An investment bank which has the primary responsibility for assessing the market and successfully marketing the issue. It helps the company at all stages from preparing the documentation, making investor presentation, selection of other managers

(subscribers) and post-issue support. It also owes a responsibility to investors of presenting an accurate picture of the company's present status and future prospects, to the best of its knowledge. This means that it must exercise due diligence in collecting and evaluating all possible information which may have a bearing on the issue.

2) **Other managers** or subscribers to the issue agree to take and market parts **of** the issue as negotiated with the lead manager.

3) **Depository bank:** A bank or financial institution, appointed by the issuing company which has certain duties and functions to be discharged vis-à-vis the GDR holders and the company. For this it receives compensation both from the company as well as the GDR holders.

4) **Custodian:** A bank appointed by the Depository, generally in consultation with the issuing company which keeps custody of all deposited property such as share certificates, dividends, right and bonus shares etc. It receives its fees from the Depository.

5) **Clearing Systems:** EUROCLEAR (Brussels), CEDEL (London) are the registrars in Europe and Depository Trust Company (DTC) is the registrar in USA who keep records of all particulars of GDRs and GDR holders.

3.1.3. Steps in issue of GDRs

The steps involved in the GDR mechanism can be summarized as follows:

i) The amount of issue is finalized in US dollars. The company considers factors such as gearing, dilution effect on future earnings per share etc. The lead manager assesses the market conditions.

ii) The lead manager and other managers agree to subscribe to the issue at a price to be determined on the issue date. These agreements are embodied in a subscription agreement signed on the issue date,

iii) Usually, the lead manager has an option to subscribe to specified additional quantity of GDRs. This option called green shoe has to be exercised within a certain number of days.

iv) Simultaneously, the Depository and the Custodian are appointed and the issuer is ready to launch the issue.

v) The company issues a share certificate equal to the number of GDRs to be sold. This certificate is in the name of the Depository, kept in custody of the Custodian. Before receipts of the proceeds of the issue, the certificate is kept in escrow, (vi) Investors pay money to the subscribers.

vi) The subscribers (i.e. the lead manager and other managers to the issue) deposit the funds with the Depository after deducting their commissions and expenses.

vii) The company registers the Depository or its nominee as holder of shares in its register of shareholders.

viii) The Depository delivers the European Master GDR to a common depository for CEDEL and EUROCLEAR and holds an American Master GDR registered in the name of DTC or its nominee.

ix) CEDEL, EUROCLEAR and DTC allot GDRs to each of the ultimate investors based on the data provided by the managers through the Depository.

x) The GDR holders pick up their GDR certificates. Anytime after a specified "cooling off period after close of the issue they can convert their GDRs into the underlying shares by surrendering the GDR to the Depository. The Custodian will issue the share certificates in exchange for the GDR.

xi) Once surrendered in exchange for shares, such shares cannot be reconverted into GDRs. That is there is no fungiability.

xii) The GDRs are listed on stock exchanges in Europe such as Luxembourg and London.

xiii) Dividends paid will be collected by the custodian converted into local currency and distributed to GDR holders.

The costs of the issue consist of various fees, commission and expenses paid to the lead manager and other managers, fees and expenses paid to the depository, preparation of documents, legal fees, expenses involved in investor presentation (road shows etc.) listing fees for the stock exchanges, stamp duties etc. Fees and commissions paid to managers vary but are generally in the neighbourhood of 3-4% of the issue amount. This is for less than issue costs in India which range between 8% and 15% of the issue size.

A very large number of documents have to be prepared prior to launching the issue. Apart from the various internal and government approvals, the key documents from me point of view of presentation to the subscribers are the offering circular and the research report. The former is compiled by the lead manager, and the latter by the lead and other managers on the basis of information provided by the company and other independent sources. Even though the lead manager is required to exercise due diligence in compiling the offering document, primary legal obligation for any discrepancy or withholding material facts is on the issuing company. As to the research document, the liability is with the managers. Both these documents are circulated prior to the "road shows" and one-to-one meetings with prospective investors. Road shows are gatherings of potential investors organized in the major financial centres of the world where the company with the assistance of the lead manager makes a presentation and holds discussions to assess investor interest.

GDR holders have the right to dividends, the right to subscribe to new shares and the rights to bonus shares. All these rights are exercised through the depository. The depository converts the dividends from $ to foreign currency. GDR holders have no voting rights. The depository may vote if necessary as per the Depository Agreement.

3.2. American Depository Receipts (ADRs)

ADRs are financial assets that are issued by U.S. banks and represent indirect ownership of a certain number of shares of a specific foreign firm that are held on deposit in a bank in the firm's home country. The advantage of ADRs over direct ownership is that the investor need not worry about the delivery of the stock certificates or converting dividend payments from a foreign currency into U.S. dollars. The depository bank automatically does the converting for the investor and also forwards all financial reports from the firm. The investor pays the bank a relatively small fee for these services. Typically non-Canadian firms utilize ADRs. For example, Mexican firms are traded in this manner in the United States - at year-end 1993, all 13 Mexican firms with their stock listed on the NYSE utilized ADRs. In March 1999, the first even ADR issue by an Indian firm took off. The Information Technology Ltd., floated ADRs Which were received very well.

One study that examined the diversification implications of investing in ADRs found that such securities were of notable benefit to U.S. investors.

Specifically, a sample of 45 ADRs was examined and compared with a sample of 45 U.S. securities over the period from 1973 to 1983. Using an index based on all NYSE-listed stocks, the betas of the ADRs had an average value of .26, which was much lower than the average beta of 1.01 for the U.S. securities. Furthermore, the correlation of the ADRs returns with those of the NYSE market portfolio averaged 0.33, whereas U.S. securities had a notably higher average correlation of .53.

Given these two observations, it is not surprising that portfolios formed from U.S. securities and ADRs had much lower standard deviations than portfolios consisting of just U.S. securities. For example, portfolios consisting of 10 U.S. securities had an average monthly standard deviation of 5.50%, whereas a 10-security portfolio split evenly between U.S. Securities and ADRs had an average monthly standard deviation of 4.41%. Thus in contrast to investing in multinationals, it seems that investing in ADRs brings significant benefits in terms of risk reduction.

The SEC currently requires that foreign firms prepare their financial statements using U.S. generally accounting principles (GAAP) if they want their shares or ADRs to be listed on a U.S. exchange or an NASDAQ. There are two consequences of this requirement. First, many foreign firms have their shares and ADRs traded in the part of the over-the-counter market that does not involve NASDAQ. Second, many large and actively traded foreign firms have decided against listing their shares in the United States. This has caused U.S. exchanges to fear that certain foreign exchanges which do not have such reporting requirements (particularly London) will reign as the financial centres of the world in the future. In response to the complaints of the exchanges, the SEC argues that this requirement is necessary to protect U.S. investors and that it would be patently unfair to U.S. firms if they had to meet such requirements but their foreign competitors did not have to do so.

4. MEANING OF DEBENTURE AND DEBENTURE FINANCING

A debenture, according to Fred Weston and Eugene F. Brigham, is unsecured long term debt. Simply said it is a borrowing having a maturity period of over some years or so. The term debenture simply means, a document that contains the acknowledgement of the indebtedness of a company to the holder of it for a given amount. In other words, it is very much similar to a promissory note. While borrowings between individuals are recorded in documents called

promissory notes, borrowings by a company (some borrowings only) from third persons are acknowledged (of course undertaking for repayment of principal and payment of interest is implied) by an instrument called debenture. But unlike promissory notes which could be for differing amount an issue of debentures contains debentures of equal denomination. For instance a company intending to borrow a sum of rupees 2,00,00,000 may issue 2,00,000 debentures of $100 each or 20,000 debentures of $1,000 each or so. Therefore each debenture of a particular series has a uniform face value. In the previous two examples, the face value of debenture is $100 or $1,000 as the case may be. A company can issue many series of debentures at a time or at different times, depending on its need, capital market conditions, etc.

A closely related term to debenture is called indenture. An indenture is a document containing the details of the long term contractual relationship between the issuing company and the holder of the security. The indenture, interalia, contains the following:

- Form of the security
- Description of any property pledged
- Authorized amount of issue - the maximum amount for which the debentures could be issued.
- Protective provisions or conditions such as limitations on indebtedness, restriction on dividends, minimum ratio of current assets to current liability, minimum ratio of equity to debt, etc.
- Provisions regarding issue terms, redemption terms and call privileges. Whether the issue is at a premium, par or discount, the percentage of premium or discount, similar factors connected with the repayment, privilege of the company to redeem the securities prior to stipulated time limit, etc. The arrangement, the company is taking to ensure repayment whether a redemption fund is set up or not.

4. 1. Features of debenture financing

Now the features of debenture capital may be highlighted.

i. Creditorship Rights

Debenture financing is a sort of debt-financing and that the debenture-holders (the persons who purchase and hold debentures) are in sense, only

lending money to the company. As lenders of money, the debenture holders do not have any ownership right or equity position in the company. They have only a creditor's rights. Debenture holders cannot participate in managing the affairs of the company as they do not have voting rights as do the equity shareholders.

ii. Fixed Claims

Debenture financing involves a fixed claim on the company's income and a fixed claim on the assuring company. That is to say debentures are fixed income securities, since the holders of debentures are eligible for a fixed periodic interest income and the principal. Thus the obligations of the company are fixed. The amount of interest due on debentures is a function of the coupon, which defines the annual interest income that will be paid by the issuing company to the debenture holder. For instance, a $1,000 debenture with 15% coupon would pay $150/- in interest annually. At maturity the principal sum namely $1,000 is payable. However, if the issue coupon differs from the market rate of interest, the issue price would differ from the par value, namely $1,000. The price of the issue will change inversely with the interest rate. This behaviour explain why a 7% issue will carry a market price of only $775/- in a 9% market. The drop in price is necessary to raise the yield on this bond from 7 to 9% (i.e. 90/1000 is approximately equal to 70/775). An issue of debentures at a price less than the par value of debentures is called issue at a discount, an issue at a price higher than the face or par value is called as issue at a premium. Issues at a discount carry coupons less that the market rate and vice versa. Regarding repayment of principal, even if the issue is at a discount, the par value is normally payable. Sometimes, repayment, i.e. redemption may be at a premium,

iii. Term Maturity

Unlike equity shares, debentures have limited life and expire on a given date. That date is called the issue's maturity date. The principal is repayable on or before the maturity date. If the entire issue has only one maturity date the issue is called term issue. On the other hand, a portion of the issue may be repaid periodically. Then the issue is called serial issue. Thus, an issue of 1,000, 15% debentures of $1,000 each, if made on a 10 year term basis, the entire issue is redeemable at the end of 10th year from the date of issue. On the other hand, if the issue is on a serial basis, 1/10 of the number of debentures issued may be redeemed annually or 1/5 of the issue may be redeemed once in 2 years or so.

iv. Provision for Premature Retirement

The issue of debentures may or may not contain 'call feature'. Call feature refers to the right of the issuing company to prematurely redeem or retire the debentures, There are three types of call provisions namely, freely callable, non callable and deferred call feature. In the first case the debenture can be retired at any time, in the second case the debenture can be retired only at the maturity time, and in the third case the debenture can be retired only after a lapse of certain period, but before maturity. Callable debentures are given a call premium over and above the par value of debentures. The call price - the sum of the par value and call premium, is the price the company must pay to retire debentures prematurely. The call premium becomes systematically smaller as the issue nears maturity. Call features are used most often to retire an issue with one that carries a lower coupon.

v. Arrangement for Repayment

The agreement the company makes for repayment of principal is another feature of debenture issues. In the case of term debentures, a company generally creates a sinking fund or debenture redemption fund to which a specified amount from the profits is transferred. The amount is invested in external securities interest thereon is reinvested. Redemption of debentures is effected by drawing funds from the sinking fund. Sinking fund arrangements are made one to five years after the date of issue and continue annually thereafter until all or most of the issue is paid off. The redemption of debentures may be made periodically or in one lump at maturity.

4.2. Merits of debenture financing

Debentures financing has certain specific merits over equity sources of finance. In this section some of the merits of the debentures are discussed.

i. Tax Saving: One of the distinct benefits of debentures is the tax savings, the company enjoys. The interest on debentures is deductible as a business expense, whereas dividend, on preferred or equity stock is not. Thus the cost of debenture servicing is far less than that of equity. To service a $ 1,000, 15% debenture the company would require only $75/- when the corporate taxation is 50%. But in regard to equity, say preferred stock, for the same amount of capital, $150 would be needed. But debenture financing may lead to some inflexibility in the

capital structure. The company therefore has to weigh in the benefit of tax savings with the implicit cost of stringency in the capital structure.

ii. Increase in Earnings for Equity: Secondly, the use of debenture financing adds to the earnings on equity. Consider the example: A company wants to raise $20 lakhs additional capital. It would earn $4 lakhs in total. If the company raises the amount through 15% debentures, assuming a 50% corporate tax the net income of the company and the earnings per share (present 1,00,000 shares) would be:

	$
Gross income	4,00,000
Less fixed interest charges	3,00,000
	1,00,000
Less tax 50	50,000
Net income	50,000
Earnings per share	$ 0.5

On the contrary if the company raises the additional capital through equity, the net income would be:

Gross income	4,00,000
Less tax 50%	2,00,000
Net income	2,00,000

The after tax cost of debentures is the interest paid less tax saved (Tax saved equal to tax paid in case 2 minus tax paid in case 1= $2,00,000 - $50,000 = $1,50,000. The after tax cost of debentures = $3,00,000 - $1,50,000 = $1,50,000 or 7.5% only, while the equity coupon is 15%.

How many shares are needed to raise the additional $20,00,000? It depends on the share price. With debenture financing the earnings per share (EPS) is $0.5. To obtain the same result by financing, the company would have to issue 3,00,000 shares so that with existing 1,00,000 share EPS will be "$2,00,000 / 4,00,000 = $ 0.5, as before. By issuing 3,00,000 shares the company has to get $20,00,000. So the issue price has to be $6.67. But the question is can the company sell its shares at $6.67 when the earnings is only $0.5 per share giving a price earnings ratio (P/F) of 13 or so. Now, it is considered that a P/E of less than 10 to 1 is considered normal. If a P/E of 10 to

1 is taken as normal, a share that gives $0.5 return can be sold at $5 only. Then, to raise additional $20,00,000 capital 4,00,00 shares are to be issued. In the given case, the total number of outstanding shares would be 5,00,000 giving an EPS of $0.4 only (2,00,000 - 5,00,000). So, with debenture financing the EPS is $0.5 and with equity financing the EPS is $0.4 only. Thus debenture financing increases the EPS. Thus the equity financing dilutes the EPS. Apart, it dilutes the management control. A share previously with debenture financing has 1/1,00,000 voting power while with equity financing the same goes down to 1/5,00,000. Surely, the existing share holders would not opt the equity mode for raising the additional capital. Hence the preference for debentures.

iii. **Debentures are Easily Saleable**: Debentures, being fixed income bearing securities, the underwriting task demanded in their case is less than that of equity shares. So newly floated companies and which are yet to establish their market standing can depend on debentures for which the capital market is more responding. Apart, the institutional market for debentures is larger than for equity securities. In addition to the above, the range of debenture types and various specific features, make debentures more tailor-made and that these are becoming increasingly attractive to both institutional and individual investors regardless of the conditions prevailing in the capital market The issue of convertible debentures attracts both the debentures preferring and equity preferring investors. Such varied features cannot be built into equity shares.

iv. **Cheaper Floatation Cost**: These days issue of debentures is less difficult and less expensive whereas the cost of flotation of equity is greater. The underwriting commission payable on debenture issues is less while the same for share is more. The share floatation cost is high because of the greater risks involved and the more extensive selling effort required.

v. **Lower Cost of Servicing**: Apart the cost of floatation, the cost of servicing debt capital is generally less over a period of time than that of equity.

Cost of debt = Risk free rate of return + Business Risk Premium.
Cost of Equity = Cost of debt + Financing Risk Premium.

The cost of debt is less than cost of equity. Cost of equity pr preference shares is substantially higher.

vi. **Value of Levered Company is Greater**: A levered company's market value is more than that of an unlevered company. Consider the example: Two

otherwise equal companies, have different capital structure. Company A is unlevered and B is having a 50:50 debt: equity capital mix. The total capital employed for each is $2,00,000 and the return on capital employed is 18%. The debentures carry 12% interest, Let the expected rate of return by equity share holders is 18%.

Assume that there is no corporate income tax. Then the value of the two companies would be as in table 1.

Table -1
Value of Levered and Unlevered Companies

Detail	*Company A* $	*Company B* $
1. Capital employed	2,00,000	2,00,000
2. Rate of return	18%	18%
3. Earnings before interest	36,000	36,000
4. Less interest on debt	-	12,000
5. Net income (3-4)	36,000	24,000
6. Equity capitalization rate	18%	18%
7. Value of equity (5-6)	2,00,000	1,33,333
8. Value of debt	-	1,00,000
9. Value of the company (7+8)	2,00,000	2.33,333

It could be seen from the above that value of a company which uses debt is more than that of another company which uses no or less debt. The above state of affairs work only when the interest rate is less than the overall earnings rate. Modigliani - Miller theory with the assumption of prevalence of corporate tax, holds that value of levered company = value of unlevered company + (Debt capital used by levered company times corporate tax rate). Here it comes to $2,00,000 + (1,00,000 x say 50%) = $2,50,000. (A Corporate tax rate of 50% assumed. So, levered company is better of than unlevered company in terms of market value.

vii. Prudent Financial Practice: Issue of debentures instead of equity shares, is considered a logical financial practice as it enables the company to consolidate and fund short-term indebtedness. The net cost of short-term borrowings is more than the cost of long term borrowings, since the former may involve leaving a minimum balance with commercial banks, etc.

viii. Prevents Dilution of Equity: Issue of debentures prevents dilution of equity. Diluting equity has the adverse impact upon share holders and impairs management control. Assume that a company with 1,00,000 shares of $10 each fully paid has $50,00,000 earned surplus. The equity of the company comprises.

Share capital	$	10,00,000
Earned surplus		50,00,000
Total Equity		**60,00,000**

The value of one share is $60, i.e., (60,00,000 - 1,00,000). If the company issues additional 1,00,000 shares of $10 each at a premium of $40 per share the new equity would be.

Share capital	20,00,000
Share premium	40,00,000
Earned surplus	50,00,000
	1,10,00,000

The value of one share is $55 = 110,00,000 - 2,00,000. Thus a reduction in share value results if additional capital is raised through shares. If debt financing is resorted to, the fall in value of equity shares would be averted. The greater the earned surplus of the company, greater will be the fall in the market value of shares when additional capital is sought to be raised through equity shares.

ix. Protection against Rising Cost of Debt: In periods of rising interest rates, issue of debentures is financially prudent as the company gets funds at lower rates which are set at the time of issue. Such rate increases affect the short-term borrowings. By issuing debentures the company is saved from paying higher rates on short-term borrowings, which might have been necessary, if long-term borrowings, were not effected. In periods of falling interest rates also, the company is going to benefit as it can redeem the debentures using the call provision and raise funds through new debenture issue at lower rates of interest.

x. Improves Liquidity Position: The use of debenture financing improves the financial ratios, especially current ratio. As debenture capital is used to finance current assets, the dependence on current liabilities is reduced and hence an improved current ratio is achieved.

4.3. Demerits of debenture financing

The limitations of debenture financing may now be taken up. The limitations are:

1. Fixed Interest Commitment: The debenture interest is payable periodically, usually half-yearly. It is a fixed commitment on the part of the company and it is to be discharged by cash disbursement. Hence, a company's operations must be stable enough to generate sales, income and cash inflows so as to be able to honour its commitment. If sales and earnings are not staple, if profit margins are inadequate, if cash inflows do not bulge, the company may find it difficult to honour its fixed financial commitment. This might affect the market standing and reputation.

ii. Risk of Insolvency: The company's chance of becoming insolvent is more as the proportion of debenture capital increases. The periodical interest payment and repayment of principal when due require cash. If the company's operations are not generating sufficient liquid assets, the business is exposed to the risk of financial insolvency.

iii. Shareholders Expect Higher Returns or Cost of Capital Increases: Shareholders of a company which uses large debt finance expect a higher yield on their share holdings. The expected rate of return includes four parts; a risk free rate; a premium for business risk; a premium for financial risk; and a premium for illiquidity. Of the four parts, the last two are a function of the ratio of debt capital to equity. The premium for financial risk increases in linear proportion and the premium for illiquidity increases more than proportionately with the debt mix in the capital structure. Hence, a company must be able to meet the shareholders expectations, failing which, its share value would lose. Such losses have many negative effects on the company's operations and reputation. The tax savings effected through debenture financing may be off set by increase in cost of equity. $K_e = K_o + (K_o - K_d)\,D/E$, Where K_e is the cost of equity, K_o is overall cost of capital, K_d is cost of debt and D/E is ratio of debt to equity.

iv. Stringent Indenture Provisions: The indenture provisions become stringent as more debt capital is raised. The debenture issue terms and conditions may stipulate that cash dividend beyond a limit should not be declared, that current ratio is not allowed to fall down beyond a limit, that assets of the company

should not be pledged to create any equitable charge on them etc. These restrictions affect the day to day operations of the business.

4.4. Debt Vs Equity in Firm's Context

What are the implications of debt capital for a firm? m lesson 6 and lesson 7 we have seen these issues elaborately. Here, first an attempt is made to present a classified picture of debt Vs equity for a firm. Next, global equity and global debt are evaluated from firm's point of view

4.4. 1 General Aspects of Debt and Equity

Below are presented general aspects of debt and equity.

Parameter	Debt	Equity
i. Permanence of capital	To some extent	To great extent
ii. Fixed Servicing	To great extent	Not at all Obligation
iii. Charge on assets	To great extent	Not at all
iv. Borrowing capacity	Uses the capacity	Creates capacity
v. Financial Risks	Creates	Absorbs
vi. Flotation cost	Lesser	Higher
vii. Means of control rights	Restrictive covenants	Voting power
viii. Tax shield	Provides shields	No leverage
ix. Trading on equity	Helps	Beneficiary
x. Investors attracted	Conservative	Risk – Seeking
xi. Valuation of firm	Adds through leverage	No Effect
xii. Suited for	Short and medium term needs	Long term and perpetual needs
xiii. Dilution of management control	Prevents	Creates
xiv. Cost of control	Lower	Higher
xv. Flexibility of capital structure	Reduces	Increases
xvi. Variety	More	Minimum
xv. Dispensability	Not indispensable	Indispensable

4.4. 2. Global Debt Vs Global Equity

Global Debt: Suppose a company floats Euro dollar bonds or goes for Syndicated foreign loan or issues foreign currency convertible bonds. What are the merits of such an action? What are the drawbacks of such an action?

Merits: The merits of global debt for the debtor firm are: First, the global debt market is more efficient than domestic markets cost of floatation and services costs of the debt are cheaper.

Second, the firm gets convertible currency which could be used to fund import contents of the project.

Third, there are varieties of instruments in the global debt market. So, an appropriate instruments can be chosen.

Fourth, if the domestic currency appreciates, debt servicing will be easy.

Fifth, tax shield, value addition through leverage effect, trading on equity, etc, can be obtained.

Drawbacks: The drawbacks of global debt financing mode for the debtor firm are:

First, debt servicing has to be in convertible currency. If the domestic currency depreciates, debt servicing becomes costlier.

Second, maturity patterns of securities may not match with maturity patterns of investments planned by the firm.

Global Equity: Now, suppose a firm goes for global equity by floating GDRs or ADRs or ADS.

Merits: The merits are:

First of all the market standing of the firm goes up. Better valuation takes place. When Infosys Technology Ltd, an Indian firm, floated ADRs, its market valuation sky-rocketed. Many can float global debt securities, but only a select group can float equity.

Second, there is no fixed servicing obligation, nor charge on assets is created. The foreign investor bets on the company's fortunes. Gain or loss, it is his.

Third, convertible currency finance is obtained.

Demerits: The drawbacks are, market valuation sinks or sails with global stock market trends. SMEs (i.e., small and medium entrepreneurs) cannot tap this market as great market standing is required to tap the global equity market.

5. DEBT INSTRUMENTS

Debt investment guarantees periodic current return and priority repayment of capital over equity investment in the event of winding up. Of course, debt investments are redeemable after a fixed time period, usually 7 years or so. Security is there. Risk averse investors go for this investment. A brief description of debt instruments available in the Euro-market is presented below.

5.1. Bonds

A bond is a debt security issued by the borrower, purchased by the investor, usually through the intermediation of a group of underwriters. Bonds are the primary debt instrument of great popularity world over. For starters, there is a veritable plethora of securities, such as Euro-bonds, Yankee bonds, Samurai bonds, and Dragon bonds which tap the European, US, Japanese, and Asia-Pacific markets, respectively. More specifically, Eurobonds are unsecured debt securities maturing at least a year after the launch. Usually fixed-rate instruments, with bullet repayments (one-shot redemption) these bonds are listed on stock exchanges abroad. And borrowers access global investors with deep pockets: individuals with high net worth as well as institutions.

The traditional bond is the straight bond. It is a debt instrument with a fixed maturity period, a fixed coupon which is a fixed periodic payment usually expressed as percentage of the face value, and repayment of the face value at maturity (This is known as bullet repayment of the principal). The market price at which such a security is bought by an investor either in the primary market (a new issue) or in the secondary market (an existing issue made sometime in the past) is its purchase price, which could be different from its face value. When they are identical the bond is said to be selling at par, when the face value is less than (more than) the market price, the bond is said to be trading at a premium (discount). The difference could arise because the coupon is different from the ruling rates of interest on bonds with equal perceived risk or because market's perception of creditworthiness of the issuer is different. The yield is a measure of

return to the holder of the bond and is a combination of purchase price and the coupon. However there are many concepts of yield. Coupon payments may be annual, semiannual or some other periodicity. Maturities can be upto thirty years. Bonds with maturities at the shorter end (7-10 years) are often called notes.

A very large number of variants of the straight bond have evolved over time to suit varying needs of borrowers and investors.

A **callable bond** can be redeemed by the issuer, at issuer's choice, prior to its maturity. The first call date is normally some years from the date of issue; e.g. a 15 year bond may have a call provision which allows the issuer to redeem the bond at any time after 10 years. The call price i.e. the price at which the bond will be redeemed is normally above the face value with the difference shrinking as maturity is approached. This feature allows the issuer to restructure his liabilities or refund a debt at a lower cost if interest rates fall. In an environment of higher interest rates (i.e. when they are expected to fall) the callable bond will have to given an incentive to the investor in the form of a higher yield compared to an otherwise similar non-callable bond.

A **puttable bond** is the opposite of a callable bond. It allows the investor to sell it back to the issuer price to maturity, at investor's discretion, after a certain number of years from the issue date. The investor pays for this privilege in the form of a lower yield. As for stepped-up coupon puttable bonds, they are a hybrid between debt with warrants and extendable bonds or notes. After a specified period of time, investors can either put the bonds back up to the issuer or hold on to the bonds for a stated period at a higher - stepped-up - coupon rate.

Sinking fund bonds were a device, often used by small risky companies to assure the investors that they will get their money back. Instead of redeeming the entire issue at maturity, the issuer would redeem a fraction of the issue each year so that only a small amount remains to be redeemed at maturity.

Zero coupon bonds are similar to the cumulative deposit schemes offered by companies in India. The bond is purchased at a substantial discount from the face value and redeemed at face value on maturity. There are no interim interest payments. One possible advantage can rise from tax treatment if the difference between the face value and the purchase price, realized at maturity is deemed to be entirely capital gains and taxed at a rate lower than the rate applicable to regular interest received on coupon bonds.

Convertible bonds are bonds that can be exchanged for equity shares either of the issuing company of some other company. The conversion price determines the number of shares for which the bond will be exchanged; the conversion value is the market value of the shares which is less than the face value of the bond at the time of issue. As the price rises, the conversion value rises. There is generally a call provision attached which allows the issuer to redeem the bond when the share price rises above a certain level which forces the holder to convert in order to avoid losing the premium on the bonds. Convertible bonds carry a coupon below that of a comparable straight bond, thus reducing cash outflow on account of interest. Small but rapidly growing companies find it an attractive funding device. It is a form of deferred equity, effectively sold above the current market price. One motivation might be that the issuer believes that the market is currently under-pricing its shares.

Bunny Bonds: These bonds permit investors to deploy their interest income from a host bond into more bonds with the same terms and conditions. Since the option to reinvest interest at the original yield is attractive to long-term investors, like the pension funds, companies find it a cheap source of finance.

Euro-Rupee Bonds: It doesn't exist yet, but several foreign institutions are toying with the idea of gobbling together such a tool for wary companies. Denominated in rupees, Euro-Rupee bonds can be listed in, say, Luxembourg. Interest will be paid out in rupees, and investors play the risks of currency fluctuations.

Euro-convertible Bonds: it's the most exciting Euro-option available. Equity-linked debt instruments, which can be converted into GDRs. ECBs represent the best of both worlds. And they may soon overtake GDRs in terms of their popularity in this country.

Traditionally, investors have the option to convert any such bonds into equity according to a pre-determined formula - and, appropriately, even at a pre-determined exchange rate. Such bonds allow investors the flexibility to remain with the debt instrument if the share price refuses to rise. These bonds have also spawned subtle variations like those with call and put options, which allow the issuer to insist on conversion beyond certain limits or permit investors to sell the bonds back to the issuer. What's more significant are the structural variations that the Euro-market is becoming famous for.

Deep Discount Convertibles: Such a bond is usually issued at a price which is 70 to 80 per cent of its face value. And the initial conversion price, and the coupon rate levels, are lower than that of a conventional Eurobond.

ECBs with Warrants: Warrants are an option sold with a bond which gives the holder the right to purchase a financial asset at a stated price. The asset may be a further bond, equity shares of a foreign currency. (Currency warrants have been particularly popular in the Euromarkets). The warrant may be permanently attached to the bond or detachable and separately tradable. Initially warrants were used by speculative issues as an added incentive to the investor to keep the interest cost within reasonable limits. Recently even high grade companies have issued warrants.

Strictly speaking, these financial instruments are nothing but derivatives of Euro-bonds. They are a combination of debt, with the investor getting an option on the issuer's equity. The equity option, or warrant, is detachable from the host bond and it can be cashed after specific points of time. However, the bonds, which have a debt life of seven to 10 years, remain outstanding until they mature. "There can be structural variations, or even derivative products which combine the risk, yield, and expectations of the issuer and the lender". For instance, they could be zero coupon bonds which carry a conversion option at a predetermined price, which are called liquid yield option notes.

Bull Spread Warrants: These warrants offer an investor exposure to the underlying share between a lower level, L, and an upper level, U. The lower level is set to provide a return to investors above the dividend yield on the share. After maturity - usually three years - if the share price is below the level L, then the investor receives the difference from the company.

Compensating for the downside protection. the issuer can cap the up-side potential on the share. When it matures, if the issuer's share price is above the level U, the issuer has to pay but only the amount U. If the stock is between L and U on maturity, the issuer has a choice of either paying the investor cash or delivering shares. As the minimum return is set above the dividend yield on shares, the structure works best for companies with a low dividend yield.

Money-back Warrants (MBWs): MBWs entitle an investor to receive a certain predetermined sum from the issuer provided the investor holds the warrant until it matures, and does not convert it into shares. To the investor, the cost of doing so is not only the cash he loses, but also the interest foregone on

that sum of the money. This means that companies must offer a higher premium than they normally do.

Bonds (straights, FRNs, zero-coupons etc.) can be classified into three categories. Domestic bonds are bonds issued by a resident issuer in its country of residence, denominated in the currency of that country. Examples are dollar bonds issued by US. Treasure of a US corporation in the US capital market. Foreign bonds are bonds issued by a non-resident entity denominated in the currency of the country of issue. A US dollar bond issue, in the US capital market, by a British corporation or the Mexican government is a foreign dollar bond. Eurobonds are bonds denominated in a currency other than the currency of the country in which they are issued. Thus a deutsche-mark bond issued in Luxembourg is a Euro DM bond. In earlier years the main distinction between foreign bonds and Eurobonds used to be in the character of the underwriting syndicate and composition of the investors. For foreign bonds, the syndicates were constituted by investment banks resident in the country of issue and investors too were predominantly residents of that country. Thus, a foreign dollar bond in the US would be underwritten by a syndicate composed of American investment banks and predominantly subscribed to by American investors. A Eurobond issue on the other hand would be underwritten by an international syndicate and subscription would be spread across a number of countries. Over the years, this distinction has more or less disappeared and it has become difficult to distinguish between the two on this basis.

The other basis for distinguishing between foreign bonds and Eurobonds could be the role played by domestic regulatory authorities. Thus for dollar bonds, issues made in US are subject to SEC regulations and registration; Eurodollar bonds are not. They are thus like bearer bonds. Different countries have different regulations in this matter.

Many Eurobonds are listed on stock exchanges in Europe. This requires that certain financial reports be made available to the exchanges on a regular basis. Trading in the secondary markets is done on the exchange through dealers (e.g. Eurodollar bonds).

Compared to syndicated bank loans, bond issues are a more expensive funding device in terms of issue costs. Much more elaborate preparations are required to ensure success of the issue. In some segments such as the US and Japan domestic markets, formal credit ratings are essential and, as in the case of

US, disclosure requirements are quite elaborate. In general, bond issues as a funding device, are difficult to access without a good credit standing.

Bond issues can be public offerings or private placements aimed at a limited number of large institutional investors. Registration and other requirements can be different for private placements. In the Eurobond markets, costs of an issue consisting of management fees, underwriting fees and selling commissions can be quite large amounting upto 2% of the issue size.

It has been estimated that during the 1980s, 70% of all Eurobond issues were tied to a Swap deal. A financial swap is not a funding instrument in itself. Rather, it is a transaction which allows both investors and issuers to achieve specific financial objectives such as particular currency composition of assets or liabilities, changing the interest basis of a liability or asset from fixed to floating or vice versa, reduce cost of borrowing by arbitraging certain market imperfections or differences in tax regulations and so forth. A swap deal can be done at the time of a new borrowing or with an existing asset or liability.

5.2. Notes

Fixed/Floating Rate Notes: Instruments for lending a period of one year to 18 months, medium-term notes are better for longer periods of one to five years. Again flexibility is the primary benefit: a note can be sold in small tranches, or in larger amounts, with different maturity periods, depending on the M conditions in the market and the company's need for funds. The interest rate may be fixed or floating.

A floating rate note (FRN) is, as its name implies, a bond with varying coupon. Periodically (typically every six months), the interest rate payable for the next six months is set with reference to a market index such as LIBOR. In some cases, a ceiling may be put on the interest rate (capped FRNs), while in some cases there may be a ceiling and a floor (collared FRNs).

Increasing Rate Debt: This debt instrument matures in 90 days' time but it can be extended at the issuer's option for an additional period at each maturity date; simultaneously, the interest rate also increases. Several variations are possible; extendable bonds and stepped-up coupon put table bonds. As the term suggests, extendable bonds have fixed redemption dates. However, the investor can choose to hold on to the bond for some more time usually at a higher coupon rate.

Flip-Flop Notes: A bond with reverse flexibility, a flip-flop note offers investors the option to convert to another debt instrument. And in some cases, investors can even go back to the original bond at a later date. The option changes the maturity of the issue and the interest rate profile. It gives issuers the opportunity to persuade investors to accept lower interest rates, thus reducing their costs. Conversely, investors have options which come in handy when interest rates fluctuate sharply.

Dutch Auction Notes: Here, investors bid for seven-year notes on which the coupon rate is re-priced every 35 days. As a result, the notes are sold at the lowest yield possible. Bids are conducted through a real auction by dealers in the US markets. The main advantages is that these notes provide money for longer period than commercial paper, since they are re-priced only once every 35 days and, unlike commercial paper are not redeemed and resold.

A large number of other variants have been brought to the market. Among them are drop-lock FRNs, convertible FRNs, dual currency bonds, bonds with exotic currency options embedded in them, bonds denominated in artificial currency units such ECU and so on. Short descriptions of some of these are given in the appendix to this chapter. A few of these will be analyzed in detail in later chapters.

5.3. Syndicated Loan

The earliest to be evolved and, for a time, the most dominant form of cross-border lending was the syndicated bank loan. Throughout the late seventies and early eighties most of the developing country borrowers relied on this source since their credit ratings and reputations were not good enough for them to avail of other avenues such as bond issues. A large bank loan could be arranged in a reasonably short time and with few formalities. This was also a period during which banks found themselves being flooded with inflows of short term funds and a relatively depressed demand for loans from their traditional developed country borrowers.

5. 4 Short Term Financing

Sources and Types: There are both external and internal sources. Trade credit, commercial banks, finance companies, indigenous bankers, advances from customers, accrual accounts, loans and advances from directors and group companies etc. are external short-term sources. A brief discussion of each source is attempted below:

5.4.1 Trade credit is a short term credit facility extended by suppliers of raw materials and other suppliers. It is a common source. It is an important source. Either open account credit or bill acceptance credit may be adopted. In the former as per business custom credit is extended to the buyer, the buyer is not signing any debt instrument as such. The invoice is the basis document. In the acceptance credit system a bill of exchange is drawn on the buyer who accepts and returns the same. The bill of exchange evidences the debt. Trade credit is an informal and readily available credit facility. It is unsecured. It is flexible too; that is advance retirement or extension of credit period can be negotiated. Trade credit might be costlier as the supplier may inflate the price to account for the loss of interest for delayed payment.

5.4.2 Commercial banks are the next important source of working capital finance. Straight loans, cash credits, hypothecation loans, pledge loans, overdrafts and bill purchase and discounting are the principal forms of short term finance provided by commercial banks. Straight loans are given with or without security. A one time lump sum payment is made, while repayments may be periodical or one time. Cash credit is an arrangement by which the customers (business concerns) are given borrowing facility up to certain limit, the limit being subjected to examination and revision year after year. Interest is charged on actual borrowings, though a commitment charge for utilization may be charged. Hypothecation advance is granted on the hypothecation of stock or other asset. It is secured loan. The borrower can deal with the goods. Pledge loans are made against physical deposit of security in the bank's custody. Here the borrower cannot deal with the goods until the loan is settled. Overdraft facility is given to current amount holding customers to overdraw the account up to certain limit. It is a very common form of extending working capital assistance. Bill financing by purchasing or discounting bills of exchange is another common form of financing.

5.4.3 Indigenous bankers also abound and provide financial assistance to small business and trades. They charge exorbitant rates of interest. But very much understanding exists between borrower and financier.

5.4.4 Advance from customers are normally demanded by producers of costly goods at the time of accepting orders for supply of goods. Contractors might also demand advance from customers. Where the seller's markets prevail, advances from customers may be insisted. In certain cases to ensure performance of contract an advance may be insisted.

5.5.5 Accrual accounts are simply outstanding dues to workers, suppliers of overhead services and the like. Outstanding wages, taxes due, dividend provision, etc are accrual accounts providing short term capital finance for short period on a regular basis.

5.5.6 Loans from directors, loans from group companies etc. constitute another source of short term capital. Cash rich companies lend to liquidity crunch companies of the group, inter-corporate loans are an important form of short term financing.

5.5.7 Euronotes can be another source of funds. Euronotes are short term notes floated in countries other than the country in whose currency the same are denominated. Euro-notes can also be called as Euro-commercial paper. But, euro-notes are longer term relative to commercial papers. In Europe, Euronotes like Note Issuance Facility, which are under-written facilities were popular. As the underwriting facility is expensive, in 1984, Saint Gobbain, an issuer and Banque Indo-Suez dealer issued Euronotes without underwriting facility.

5.5.8. Commercial Papers: Commercial Paper (CP) is a short term unsecured promissory note that is generally sold by large corporations on discount basis to institutional investors and other corporates for maturities ranging from 7 to 365 days. Commercial paper is cheap and flexible source of fund for highly rated borrowers as it works out cheaper than bank loans. For an investor it is an attractive short term investment which offers higher interest than bank accounts.

In U.S.A. the commercial paper is in existence for more than 100 years and accounts more than 400 billion US dollars. U.S.A. is the largest commercial paper market. It is used extensively by U.S. and non U.S. corporations. Any issuer who wants to launch a C.P. in U.S.A. has to get it rated by Moody's or by Standard and Poor's Corporation, the credit rating agencies. The commercial

papers then can be placed either directly or through C.P. dealers. The major investors are Corporates, Trusts, Insurance Companies, Pension Funds and other funds, banks etc.

Commercial papers can be issued either directly in their own name or with third party support in the form of standby letters. Most C.P. programs have a back-up credit line of a commercial bank covering at least 50% of the issue.

Commercial papers are continuously offered unsecured debt by the borrower. Most FCPs mature in 30, 60, or 90 days and are sold at a discount to their face value. That reflects the interest on the instrument as well as the overall yield to the investor. It's extremely flexible, since commercial papers can be structured according to different maturities, amounts and rates according to the issuer's needs for funds.

As the Euronotes involved the costly underwriting facility, in 1984, Saint Gobbain, an issuer and Banque Indo-Suez dealer issued Euronotes without underwriting facility and thus became the first Euro-CP issue. The commercial paper issues in the Euromarkets developed rapidly in an environment of securitization and disintermediation of traditional banking.

5.5.9. Inter-firm loans

Direct loans, back-to-back financing and parallel loans are the forms of loans adopted to transfer fund.

i. Direct loans involve two parties (i) parent and affiliate or (ii) one affiliate and another. Other forms involve an intermediary.

ii. Back to Back loan is also called fronting loans or link financing. It is employed to finance affiliates located in nations with high interest rates and/or restricted capital market. The parent firm in country A deposits funds with a bank in country A, who in turn lends to the affiliate in country B. From the bank's point of view its risk is nil as the loan is backed up by the deposit. For the MNC two advantages flow. The subsidiary gets finance at reduced rate of interest as the withholding tax rate on loans from multinational banks is lower than the same on loans from MNCs. The government of country B, will permit the subsidiary to honour amortization schedule of a loan from a multinational bank, even though it may not allow it to do so in respect of a loan from MNC parent/another affiliate, when exchange controls are introduced. The third

benefit is that the subsidiary's reputation gets enhanced because of its access to funding by a multinational bank.

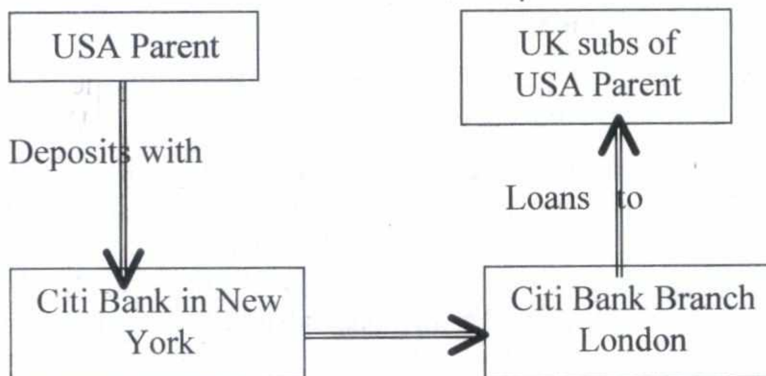
Variations in back-to-back loans exist in terms of currency of deposit and currency of loan, the party depositing (need not be an affiliate always) and the party getting the loan, enabling the release of blocked funds and so on.

Cost of back-to-back loan: Assume opportunity cost of funds to the parent be 10%, its deposit fetch 8%, its marginal tax rate 35%. The affiliate's marginal tax rate 45%, its cost of back to back loan 9% (with a spread of 1% to the bank) and currency depreciation of the affiliate's country 11%. Then the effective cost of back to back loan equal to:

Interest cost to parent	- Interest income to parent	+ Interest cost to affiliate	- Tax gain on exchange less
=10%(1-.35)	- 8% (.35)	+ 9%(1-.45)	- .45(11%)
= 6.5%	- 2.8%	+ 4.95	- 4.95
= 3.7%			

Back to back loans can be used to access blocked currency funds without physically transferring them.

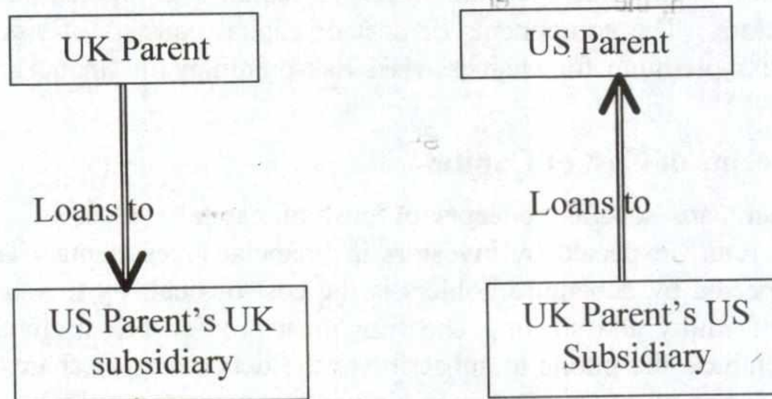
BACK TO BACK LOAN



Parallel Loan: Parallel loan actually involves a resident firm in a country lends to a non-resident (other country) firm on the condition that the non-resident's affiliate resident in the other country lends to the non-resident affiliate of the

resident firm in the other country. It is an effective method of lifting blocked funds.

PARALLEL LOAN



To know parallel loan as a method of funds transfer, look at the following exhibit as well which describe two situations.

Case (a)		Case (b)	
UK	**US**	**UK**	**US**
UK Parent lends to US Parent's sub. In UK	US Parent lends to UK Parent's sub. In US	UK Parent 1 lends to UK Parent 2	UK Parent 2's Subsidiary in US lends to UK Parent 1's UK Subsidiary

6. COST OF CAPITAL

Capital, like all resources, involves a cost. Business organizations when mobilizing capital incur cost and later when serving the capital incur servicing cost. The former known as floatation cost is one-time and includes underwriting and brokerage commission, cost of printing and vetting of prospectus, financial advertisement costs, etc. Flotation cost accounts for 3 to 8% of issue size, it is said. Higher the issue size, less is the floatation cost and vice versa. Depending on the primary market conditions, floatation cost varies. In boom sentiments the cost is lower and vice versa. The servicing cost is recurring and includes

dividend, interest etc. paid periodically. While interest rates are fixed and payment of interest is compulsory, dividend rates are varying and dividend payment is not a legal binding on the management. Yet, companies pay dividend lest share price shall fall. Cost of capital is computed considering the above factors. The components of cost of capital consists of risk-free rate of interest, risk-premium for business risk, risk-premium for financial risk and the like.

6.1. Concepts of Cost of Capital

There are several concepts of cost of capital. Cost of capital is the minimum return expected by investors in financial investments. The minimum return expected by debenture holders is the cost of debt, by the shareholders is the cost of equity and so on. The firm must provide this minimum return in order to enthuse the public to subscribe to the debentures or shares, as the case may be. Cost of capital is the minimum return that should be earned by a business (so as to be in a position to satisfy the providers of capital). If 16% return is expected by investors in bonds of a company, the company must earn at least 16% on the funds mobilized through issue of bonds. Hence minimum return expected by investors and minimum return to be earned by a company both mean one and the same.

Cost of capital may refer to specific cost or combined cost of capital. Specific cost of capital refers to cost of each component of capital, like share capital, debt, etc. Combined cost of capital is the overall cost of all funds employed by a business.

Actual and imputed cost concepts need to be looked into. Actual cost of capital refers to the out of pocket cost of capital. In the case of debentures payment of interest is an actual expenditure. So, cost of debenture is generally actual. As to shares, in the initial years dividend payment may not be there. But a capital appreciation might be there in the stock market due to potentials of the scrip. So. equity capital in this context has an imputed cost.

Cost of capital may be of the opportunity cost type. The retained earnings belong to shareholders but are not capitalized. Yet, they involve a cost, an opportunity cost which means what the shareholders could have earned had they been distributed as dividend or capitalized by means of bonus share issues.

Cost of capital may be marginal cost and average cost. Marginal cost is the cost of additional capital that may be raised whereas average cost is the combined cost of total capital employed.

Cost of capital can be pre-tax or post-tax cost. Debenture interest is deducted while computing income for tax purposes. So, debentures' post-tax cost is lower than pre-tax cost. Accordingly, overall cost of capital also can be classified into pre-tax and post-tax average cost of capital.

Cost of capital may be explicit or implicit. Explicit cost of capital is similar to out-of-pocket cost. It is an accounting cost. Implicit cost is hidden and it may not involve actual payment and hence may not be directly accounted for.

Cost of capital may be classified into past and future costs. Past cost is irrelevant for decision-making, while future cost is relevant. For funds raised already the floatation cost is a past cost, whereas future interest/dividend commitments are future cost.

6.2. Computation of Cost of Capital

The computation of specific costs of capital is attempted here.

6.2.1. Cost of Debt (K_d or K_b)

Debt capital is a predominant method of corporate financing. Debt may be short term or long term debt. Short term debt takes over several forms like bank loan, bank cash credit and bank overdraft, trade credit, bill discounting, etc. The rate of interest applicable to bank loan, cash credit, overdraft and bill discounting is the pre-tax cost of those credit forms. The post-tax cost of these forms of financing is obtained by multiplying pre-tax cost of capital by (1 – Tax rate).

i. Cost of trade credit: Regarding trade credit, the supplier may prescribe a payment term such as, 5/30, net 60 days which means, a cash discount of 5% if payment is made within 30 days, else full payment by the 60th day. It means on a transaction of \$100, \$95 payment is enough if payment is made by 30th day, otherwise \$100 be paid by the 60th day. That is, failing to pay \$95 by 30th day, entails payment of \$100 by 60th day, or \$5 interest for 30 days, on a capital of \$95. So, interest rate comes to : 100 x 5 x 360 / 95 x 30 = 63%. Failing to take

advantage of cash discount results in heavy interest cost. This is an opportunity cost.

ii. Cost of long term debt: Cost of long term debt is computed differently for different types of debt capital.

a. Cost of irredeemable debentures: For irredeemable debentures of a coupon rate of 14% and issue cost of 2%, the cost of capital is:

$$K_d\,(Pre-tax) = \frac{Annual\,Coupon\,interest}{Net\,Issue\,price}\ x\ 100 = \frac{\$.14}{98}\ x\ 100 = 14.3\%$$

$$K_d\,(Post-tax) = K_d\,(Pre-tax)\ x\ (1-Tax\,rate)$$

$$= 14.3\%\ (1-0.4),\ taking\ 40\%\ tax\ rate$$

$$= 8.58\%$$

b. Cost of redeemable debentures: For redeemable debentures the cost of debt is computed differently. Let the net issue price be $98 and redemption price after 8 years be $102. The coupon rate is 17% p.a. Then the cost of debt will be:

$$K_d\,(Pre-tax) = \frac{Annual\ Coupon\ Interest + \dfrac{Redemption\,Price - Net\,Issue\,Price}{No.\,of\ Years\ to\ Redemption}}{\dfrac{(Net\,Issue\,Price + Redemption\,Price)}{2}}\ x\ 100$$

$$= \frac{\$.17 + \dfrac{(102-98)}{8}}{\dfrac{(98+102)}{2}}\ x\ 100 = \frac{17.5}{100}\ x\ 100 = 17.5\%$$

Actually, the above formula is an approximation of the formula :

$$\$.98 = \frac{\$.17}{(1+r)} + \frac{\$.17}{(1+r)^2} + \ldots\ldots + \frac{\$.17}{(1+r)^8} + \frac{\$.102}{(1+r)^8}$$

where 'r' is the pre-tax cost of debt. This is the present value model. The general form is:

$$P = \frac{I_1}{(1+r)} + \frac{I_2}{(1+r)^2} + \frac{I_3}{(1+r)^3} + \ldots\ldots + \frac{I_n}{(1+r)^n} + \frac{A}{(1+r)^n}$$

$$K_d\,(Post - tax) = Kd\,(Pre - tax)\ x\ (1 - Tax\,rate)$$
$$= 17.5\%\ (1-60\%),\ taking\ a\ 60\%\ \ tax\ rate$$
$$= 7\%$$

Where interest payments are made semiannually or quarterly, the effective cost will be slightly higher. Assuming a semi-annual interest payment and using the present value model, the pre-tax cost of debt is the value of 'r' in the formula:

$$\$98 = \frac{\$.8.5}{(1+r/2)} + \frac{\$.8.5}{(1+r/2)^2} + \ldots\ldots + \frac{\$.8.5}{(1+r/2)^{16}} + \frac{\$.102}{(1+r/2)^{16}}$$

The general form here is,

$$P = \frac{I_1}{(1+r/2)} + \frac{I_2}{(1+r/2)^2} + \frac{I_3}{(1+r/2)^3} + \ldots\ldots + \frac{I_{2n}}{(1+r/2)^{2n}} + \frac{A}{(1+r/2)^{2n}}$$

Cost of debt that we have seen is the explicit or out of pocket cost. There may be an implicit cost due to restrictive covenants imposed, bankruptcy cost in the event of forced winding up and so on. Explicit cost varies with credit standing and market factors. With higher credit rating, larger issue size and booming market sentiment, explicit cost decreases and vice-versa.

6.2.2 Cost of Preference Shares (K_{ps}): In the case of irredeemable preference shares, the cost of capital is given by,

$$K_{ps} = \frac{Annual\,Coupon\ Dividend}{Net\ Issue\ Price}\ x\ 100$$

Say $200 face value preference shares carry a dividend rate of 15% p.a. Issue expenses amounted to 3%. Then the

$$K_{ps} = \frac{\$30}{(200-3\%)}\ x\ 100 = \frac{\$30\,x\,100}{194} = 15.4\%$$

No tax benefit is available to the company on preference dividend paid. Hence 15.4% is the effective cost.

For redeemable preference shares, redeemable after 'n' years, cost of capital is 'r' in the following equation:

$$P = \frac{D_1}{(1+r)} + \frac{D_2}{(1+r)^2} + \ldots\ldots + \frac{D_n}{(1+r)^n} + \frac{A}{(1+r)^n}$$

Where, P = net issue price $D_1, D_2, \ldots. D_n$ are dividends for 1st through nth years. A redemption price, n = number of years to maturity, and r = discount rate (i.e. the cost of capital). An approximation for the above model is

$$Kps = \frac{D + \dfrac{\text{Redemption Price} - \text{Net Issue Price}}{\text{No. of Years to Maturity}}}{\dfrac{(\text{Net Issue Price} + \text{Redemption Price})}{2}} \; x\ 100$$

Let us take an example. Issue Price (P) = \$96. Coupon dividend is 17%. Redemption at a premium of 2% after 6 years. Then,

$$Kps = \frac{\$.17 + \dfrac{(102-96)}{6}}{\dfrac{(96+102)}{2}} \; x\ 100 = \frac{\$.18 x 100}{99} = 18.2\%$$

6.2.3 Cost of Equity (K_e): There are several cost models relating to equity capital. These are dividend approach, dividend plus growth approach and earnings approach. These may be explained.

a. Dividend Approach (D/P), assumes a constant dividend per share (DPS) continually for a infinite period. The K_e = D/P, where 'D' is the fixed DPS and 'P' is current price. A company's equity share gives \$5 dividend p.a. for an infinite time to come and its price is \$50 at present. Then K_e = D/P x 100 = 5/50 x 100 = 10%. Constant dividend model is not realistic. Hence the above method lacks practical significance.

b. Dividend plus growth (D/P + g) approach assumes a constantly growing dividend, at 'g' rate. Here, $K_e = D_1/P + g$, where D_1 is the dividend expected one year from now, P is the current price and 'g' is the growth in dividend expected to continue infinitely.

Let's take a case. A company has declared \$1.00, \$1.10 and \$1.21 for the past three years. The current market price is \$12. The cost of equity is: $K_e = D_1/P + g$. A look at the annual dividends of the past indicates a 10% growth in dividend. So, 'g' = 10%, DI = dividend one year hence \$1.21 + 10% = \$1.21 + 0.121 = \$1.331. So,

$$K_e = \frac{\$.1.331}{12} x\ 100 + 10\% = 11.1\% + 10\% = 21.1\%$$

6.2.4. Cost of Convertible Debentures (K_{cd})

Cost of convertible debentures is to be calculated adopting present value model. Present value of interest payable upto conversion and present value of shares that may be allotted on conversion should be equated to issue price of the convertible debenture. The discount rate that equates the two is the cost of convertible debenture.

A company has issued convertible debentures carrying a coupon rate of 12% p.a. at a net issue price of \$90 (i.e. 10% discount). After three years each convertible debenture is to be converted into an equity share. The equity dividends for the last three years were \$5, \$5.50 and \$6.05 and the current market price is \$80. To find the cost of convertible debenture we must know the value of shares that will be given at the end of the 3rd year in lieu of debenture. That is equal to: Expected dividend 4 years hence divided by $K_e - g$. $K_e = D_1/P_0 + g$. D_1 = dividend per share one year hence = Last year dividend + growth for 1 year. Growth, g = 10% p.a. (you can easily know this by a glance over the past DPS, viz., \$5, \$5.5 and \$6.05. So, D_1 = \$6.05 + 10% = \$6.66. K_e = \$6.66/\$80 + 10% = 8.3% + 10% = 18.3%. Expected dividend 4 years hence = \$6.05 $(1 + g)^4$ = \$6.05 x $(1.1)^4$ = \$8.87. Value of the share at the time of conversion = 8.87/(18.3% – 10%) = \$8.37 / 8.3% = \$107.

So,

$$\$.90 = \frac{I_1}{(1+r)} + \frac{I_2}{(1+r)^2} + \frac{I_3}{(1+r)^3} + \frac{107}{(1+r)^3} \quad or,$$

$$\$.90 = \frac{\$12}{(1+r)} + \frac{\$12}{(1+r)^2} + \frac{\$12}{(1+r)^3} + \frac{\$107}{(1+r)^3}$$

where 'r' = cost of convertible debenture. We can get the value of 'r' by trial and error method. It may be arrived at through the approximation formula as well.

$$K_{CD} = \frac{I + \frac{Premium}{No. of Years}}{Average of Issue and Redemption Price} x 100 = \frac{12 + \frac{(107-90)}{3}}{\frac{(90+107)}{2}}$$

$$= \frac{12+5.67}{98.5} x 100 = \frac{17.67}{98.5} = 18\%$$

6.2.5. Cost of Retained Earnings (K_r)

Retained earnings are accumulated profits and free reserves belonging to equity shareholders. Though it has no explicit cost, opportunity cost is involved. It is not cost free, though it may appear to be so. The business must earn at least what the shareholders can earn on this sum if it is distributed as dividend. Say a company has $10,00,000 retained earnings. Assume it declares the whole sum as dividend. The shareholders receive dividends $10,00,000. But they are assessed to tax on the dividends. Let us assume the marginal rate of taxation of the shareholders is 30%. So, 30% of $10,00,000 is paid as tax. So only $7,00,000 are left with shareholders. Let us assume they invest in various financial assets earning an overall return of 18% p.a. Cost of investment amounted to 3%. That is of the $7,00,000; 3% is spent on incidentals to investment and that only, $6,79,000 are invested earning 18%. The return would be $1,22,220. If the company does not pay dividend, it must at least earn $1,22,220 on the $10,00,000 retained earnings. This is the breakeven or parity return. Then the rate comes to 12.222% So, K_r = 12.222%. It can be calculated adopting the formula:

$K_r = K_e (1 - TR) (1 - FC)$

where, K_e = cost of equity, or minimum return expected by equity investors

TR = marginal tax rate of shareholders, and FC = flotation cost.

$K_r = 18\% (1 - 30\%) (1 - 3\%) = 18\% (.7) (.97) = 12.222\%$

6.2.6. Weighted Average Cost (K_0)

When different sources of capital are employed overall or weighted average cost of capital can be calculated. This gives an idea about the average return that the firm must earn on its investment.

To compute the weighted average cost of capital two factors are needed. These are: weight of individual source of capital to total capital and the cost of

individual sources of capital. The latter has been dealt at so far. The former is a simple concept. But there are several alternatives of weights. Book weights, market weights and marginal weights are the alternative forms of weights.

Book weights method uses book value of individual sources of capital total book value of all sources capital employed. Book weights are definite and historical, but devoid of realism as current market values are not reflected. Hence K_o computed on this basis may lead to deflated K_o and investment decisions based on such K_o may prove to be fatally wrong.

Market weights method uses market value of individual sources of capital employed to total market value of all sources of capital employed. Market weights are realistic, but subject to fluctuation. So, market weight based K_o is also fluctuating. Sometimes market values may not be known. Hence the difficulty.

Marginal weight method becomes relevant when additional capital is raised from more than one source. If only one source is used to raise additional capital, specific cost of that source is the overall cost of marginal capital raised. In other situations using marginal weights, the marginal overall cost of capital is calculated. Acceptance or rejection of new investment proposals to done by comparing marginal rate of return of new investment with the marginal cost of additional capital funding the investment. The marginal ROI should at least be equal to marginal K_o. An example may be taken up now to further discuss K_o.

A firm has the following capital mix.

Source of Capital	Cost	Book Value	Market Value
Equity share capital	18%	8,00,000	28,50,000
Retained earnings	15%	10,00,000	-
Preference share capital	14%	4,00,000	4.50,000
Debentures	12%	28,00,000	27.00,000*
(Tax rate 50%)		50,00,000	60,00,000

The following table works out the cost of capital for the firm on market and book weight basis.

Source	K_o – Book Weight	K_o – Market Weight
Equity share capital	18% x 8/50 = 2.88%	18 x 285/600 = 8.55%
Retained earnings	15% x 10/50 = 3.00%	---
Preference share capital	14% x 4/50 = 1.12%	14 x 45/600 = 1.05%
Debentures* *(Post tax rate = 6%)	6% x 28/50 = 3.36%	6 x 270/600 = 2.70%
K_o	**10.36%**	**12.30%**

6.2.7. Marginal Cost of Capital

A concern is considering an investment proposal requiring an investment of $50,00,000 and promising an ROI of 14% Debt capital to the tune of $30,00,000 is available at 18% (the tax rate is 45%). Balance of capital is to be financed through retained earnings. K_e = 25%. Marginal tax rate of shareholders is 20%. Floatation cost is 2%. Can the project be taken up?

Marginal Cost of Capital = Marginal weighted cost debt + Marginal weighted cost of retained profit

= [18% (1 – 45) x 30/50] + [25% (1 – 20%) (1 – 2%) x 20/50]

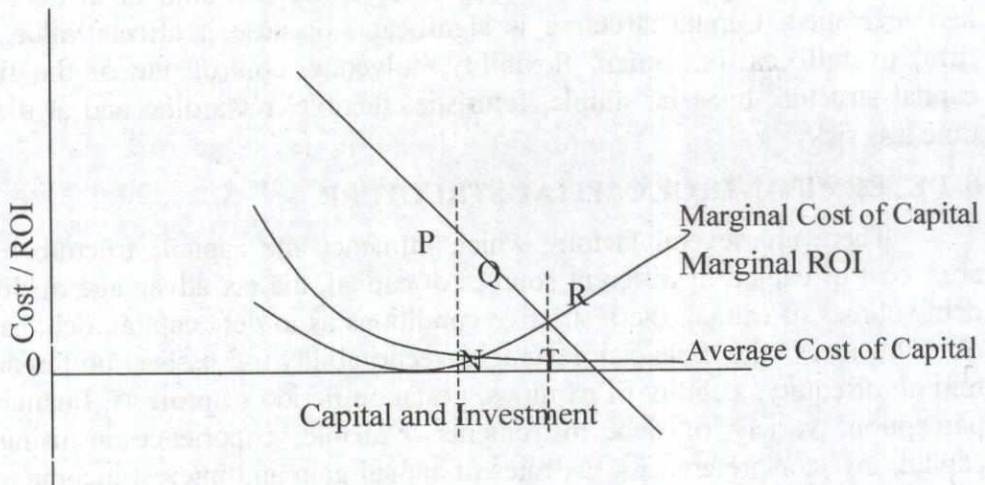
= [9.9% x 0.6] + [19.6% x 0.4]

= 5.94% + 7.84% = 13.78%

The project's ROI at 14% is greater than the marginal cost of capital at 13.78%. Hence the project may be accepted.

In the diagram, marginal ROI is shown by positively sloping straight line. As more projects are taken up marginal ROI is declining. Marginal cost of capital (MCC) and average cost of capital (ACC) are 'U' shaped, MCC cuts the ACC at the lowest point and passes upwards.

Figure: Marginal Cost of Capital and Marginal ROI



As long as M.ROI is greater than MCC, new projects may be taken up. At 'S' MCC = M.ROI, when ON level of investment is committed, MCC = ACC. But, as MCC is still below M.ROI, more investment can be considered. At OT level of investment MCC = M.ROI. On the NT, additional investment, PNTS additional revenue is made and QNTS additional cost is incurred, resulting in PQS net additional revenue. Thus OT is the return maximizing investment volume.

6.3. Uses of Cost of Capital

To know whether capital has been mobilized cost effectively, cost of capital data are useful. Cost of capital of firms of like nature can be compared and efficiency or inefficiency in capital mobilization can be spotted. Cost of capital is used as the acceptance-rejection criterion of investment proposals. If the return on investment is higher than the cost of capital, the proposal is to be accepted and vice versa. Cost of capital is the minimum target return that a firm must earn to remain in business. Cost of capital should be closely monitored and moderated, if need be by altering the capital structure, if possible.

7. CONCEPT OF CAPITAL STRUCTURE

Capital structure refers to the composition of a firm's long term capital sources. Primarily the debt-equity composition is referred to as the capital structure. Capital structure that uses debt is called levered capital structure and

that which does not debt is called un-levered capital structure. High amount pf debt makes the capital structure highly levered and less amount of debt makes less leveraged. Capital structure is significant, because it affects value of the firm, overall cost of capital, flexibility, solvency, control, etc of the firm. A capital structure must be simple, futuristic, flexible, rewarding and at the same time less risky.

8. DETERMINANTS OF CAPITAL STRUCTURE

There are several factors, which influence the capital structure. These are: cost of capital of different sources of capital, the tax advantage of different debt sources of capital, the restrictive conditions as to debt capital, debt capacity of a business, the financial leverage, securitability of assets, preference for trading of equity, stability of earnings, gestation period of projects, financial risk perception, variety of debt instruments available, experience in using debt capital, investor preferences, tax rates of capital gain and interest income, capital market conditions, management, philosophy and so on.

Cost of Capital of different sources of capital influences capital structure. A company would be interested in less overall cost of capital and that a source that is less expensive will be used more than the one that is costlier. Generally, debt capital is said to be less expensive, hence the tendency to use more debt capital. But, of late, equity capital has become cheaper due to free pricing of capital issues. Hence, now, more equity capital is used by companies. Among debt capital, bank loans are viewed more expensive than market borrowings and that more debt capital is raised through the capital market than from bank loans.

Tax Advantage of debt capital is a factor in favour of using more debt capital. The interest paid on debt capital is deducted while computing taxable income. So, tax saving to the extent of interest paid times tax rate is enjoyed by the company, reducing the effective cost of debt. This advantage lures companies to use more debt capital.

Restrictive Covenants such as restriction on business expansion, on raising additional capital, on declaration of dividend, nominees directors on the board, convertibility clause etc. go with debt financing, especially borrowings from term lending financial institutions. These restrictive conditions are the implicit cost of debt capital normally not considered, but should be considered.

Leverage Effect has to be looked into. Financial leverage refers to the rate of change in Earnings Per Share (EPS) for a given change in Earnings Before Interest and Tax (EBIT). A more than proportionate positive change in EPS for a given change in EBIT might tempt management to use further debt capital initially to enhance EPS and later go for additional equity capital at a premium

Debt Capacity of a Business needs consideration. How much debt capital a business can bear, that is, comfortably service is a factor to be reckoned.

$$\text{Debt-service coverage Ratio} = \frac{\textit{Annual Cash Flow}}{\textit{Interest} + \dfrac{(\textit{Annual Principal Instalment})}{(1 - TR)}}$$

It should be at least 3 for comfortable debt servicing. Interest coverage ratio is also a measure of debt capacity. Businesses that do not generate sufficient cash flow should think of alternative sources.

Securitability of Assets is a determining factor for using debt capital. Firms which have assets that are readily accepted as security can raise debt capital. Land at prime locations, modern buildings, machinery in good condition, etc. are accepted as security. Undertakings owning these assets can go for debt financing.

Trading on Equity is a technique by which by low cost debt is used extensively to enhance earnings for equity shareholders. If the management is interested in this it would use more debt capital. ROI must be greater than cost of debt to reap benefit of trading on equity.

Stability of Earnings is very important for practicing trading on equity and for servicing larger debt. If earnings fluctuate, it is better less debt capital is used.

Gestation Period refers the period between commencement of project construction and first commercial operation of the project. Longer the gestation period, more equity financing is advised as there will not be need for servicing of capital in the initial times.

Financial Risk perception is an influencing factor of capital structure. Financial risk refers to the chances of bankruptcy proceedings against the firm for non-payment of debt or failure to service debt for a period. If the risk is higher, less debt capital is good.

Variety of Debt Instruments available is another factor. While ordinary bonds may be unsuitable for long gestation period project, but Zero coupon bonds are a good substitute. Convertible bonds are again superior to ordinary bonds in terms of salability. Now variety is available as against the recent past.

Experience in using Debt Capital is another factor. Debt needs to be handled expediently. Periodic servicing, roll over, swap and the like need to be adopted when needed. Not all are good at dealing with debt. Hence experience in using debt capital is important.

Investor Preferences for securities for investment need to be kept in mind. At times people want debt securities, while at other times equity is preferred. The risk averse prefer debt instruments, while the risk seekers go for equity investments.

Capital Market Conditions are another factor. When capital market is booming firms can take the market route to raise capital. In the depressed situation, firms depend on bank finance, and other debt finance.

Cost of Floating can also influence capital structure. When cost of floating is high in India, the same is less in International market. Some Indian firms raised capital by floating GDRs (Global Depository Receipts), an equity capital form, involving lower 3-5%, floating cost as against the domestic situation of, as high as, over 10% floating cost.

Rate of Tax on Capital Gain and Current Income may influence form of capital. People in the higher tax bracket prefer capital gain as against current income. Hence preference for equity instruments is evinced by them. So, firms may opt for equity capital.

Management Philosophy comes next. Some management are not interested in debt financing at all. Colgate-Palmolive Ltd., is an all-equity firm by choice. Some companies depend extensively on debt capital. Management orientation is one of the deciding factors.

Legal Stipulation as to dept ceiling is another factor influencing capital structure. Earlier, a debt equity norm of 2:1 was generally insisted on by the Controller of Capital Issues. Though no longer this legal stipulation exists with the repealing of the Capital Issue Control Act, it has become a rule of thumb. Banks and financiers look at the debt equity ratio before committing further debt investment in a firm .

Free-Pricing, **Book Building** and **Price Band** for public capital issues, now in vogue has made companies using more equity financing than debt financing as better pricing has been realized compared to earlier system of issue price determination by the capital market authorities.

Liberalization and Globalization also influence capital structure as opportunities and trend in capital market are widely influenced by these factors.

9. OPTIMAL CAPITAL STRUCTURE

As already referred to companies want to be optimally structured as to capital. Neither over dependence on equity nor on debt capital is advised. Again extent of dependence on any type of capital is influenced by both firm specific and market-wide factors. Optimal capital structure as earlier referred to is one that: maximizes value of the firm, minimizes overall cost of capital, reduces rigidity of capital structure, enhances control over affairs of the business, increases simplicity of capital structure, ensures enjoyment of tax leverage, helps reaping financial leverage benefits to the maximum and so on.

Optimum capital structure is a classical concept. Debt capital and equity capital are in fine balance here producing optimal results on value, cost, leverage control and the like. As a firm uses debt up to a level its value increases. Beyond certain level debt capital proves costlier and value starts dropping downwards. The debt equity point at which value is maximized, is called the optimal capital structure. Optimal capital structure varies with firms and with market factors. As market and firm specific factors keep changing, optimal capital structure also varies.

Businesses try to reach optimal capital structure. Do they reach is question mark. Mostly, they are about, but not at optimal capital structure.

10. THEORIES OF CAPITAL STRUCTURE

The theories of capital structure analyze whether or not value is influenced by capital structure. There are several theories of capital structure. Net income, net-operating income and Modigliani-Miller theories are some capital structure theories. The theories are based on the following general assumptions:

10.1. Assumptions

Only two sources of capital, debt and equity, are used; Debt capital is cheaper than equity capital; Cost of debt capital is fixed; There is perpetual life of the firm; There is no corporate taxation; There is perfect competition in capital market; There is 100% dividend payout; The total assets do not change, there is no expansion; The operating profit, i.e. EBIT remains constant; Business risk is constant over time and is independent of capital structure and financial risk.

10.2. Net Income Theory

The Net Income Theory (NIT) was propounded by D. Durand. The theory considers that capital structure influences value of the business. As more and more debt capital is employed, value of the firm increases, as per the theory. The theory assumes that both K_e and K_d are constant. As more and more debt is used, the K_o decreases and at extreme position $K_o = K_d$ when no equity is used. As, K_o decreases, value 'V' rises.

Let EBIT = $1,00,000. Let the debt carry 10% coupon. The K_e = 12.5%. Then for varying levels of debt capital being employed, the value of the firm changes as deduced below:

Details	Case 1 ($)	Case 2 ($)	Case 3 ($)
Debt	2,00,000	4,00,000	6,00,000
EBIT	1,00,000	1,00,000	1,00,000
Less: Interest on debt @ 10%	20,000	40,000	60,000
Net Income on equity (NI)	80,000	60,000	40,000
K_e%	12.5	12.5	12.5
Value of equity (E): NI ÷ K_e	6,40,000	4,80,000	3,20,000
Value of Debt (D): I ÷ K_d	2,00,000	4,00,000	6,00,000
Value of firm(V): (E + D)	8,40,000	8,80,000	9,20,000
K_o = EBIT ÷ V	11.9%	11.4%	10.9%

It is seen above that value increases and overall cost of capital decreases as more and more of debt is used. The optimum capital structure is undefined

here. As we use more of debt we may approach the optimum capital structure. 100% debt firm is perhaps optimally capital structured as per this theory. But that is the most unreal. Such situation has no capital structure at all as only one type of capital is used.

10.3 Net Operating Income Theory (Noit)

Net operating income theory is also suggested by D. Durand. This is a negation of the NIT. As per the NOIT all capital structures are equally good or bad. So any capital structure can be taken as optimum. It can be also told that there is no optimal capital structure. Tat is value of firm and overall cost of capital are unaffected by capital structure. The theory assumes that both K_d and K_o are constant and it is the equity capitalization rate (K_e) that is changing. K_e changes with leverage, $K_e = K_o + (K_o - K_d)(D/E)$, where D = value of debt, E = value of equity and E = V – D, where 'V' is the value of the firm = EBIT/K_o. K_o depends on risk complexion of the business and not on capital structure. Let EBIT = \$1,20,000; K_d = 10%; K_o = 12%. We can prove that V remains constant as shown below:

Details	Case 1($)	Case 2($)	Case 3($)
Debt	2,00,000	4,00,000	6,00,000
EBIT	1,20,000	1,20,000	1,20,000
V = EBIT / K_o	10,00,000	10,00,000	10,00,000
Debt interest 10%	20,000	40,000	60,000
Earnings after interest	1,00,000	80,000	60,000
Market value of Debt= D = (I / K_d)	2,00,000	4.00,000	6,00,000
E = V – D	8,00,000	6.00.000	4,00,000
K_e = EAI/E	12.5%	13.3%	15.0%

It is seen that Ke is raising with rising leverage that is more and more use of debt. Ke is increasing in a linear ratio with leverage (B/S). For instance, when D = 2,00,000 and E = 8,00,000,

$$K_e = K_o + (K_o - K_d)\, D/E$$

$$= 12 + (12 - 10)\ 2{,}00{,}000/\ 8{,}00{,}000$$

$= 12 + 2\ (0.25) = 12.5\%$.

When D = 6,00,000 and E = 4,00,000,

$Ke = 12 + (12 - 10)\ 1.5 = 15\%$.

As leverage rises, equity shareholders expect higher return in order to compensate the increasing financial risk they are exposed to.

10.4 Modigliani-Miller (MM) Theory *(Without Corporate Taxation)*

Franco Modigliani and Merton H. Miller proposed a theory of capital structure which appeared like the NOIT in effect, but different in process. Like NOIT, MM theory hold that K_o and V are independent of capital structure K_o and V are constant for all leverage. K_e is rising with leverage and is equal to the sum of K_e of an equity capitalization rate of a pure-equity firm and a financial risk premium which is equal to the difference between the equity capitalization rate of pure equity firm and cost of debt times the leverage ratio, i.e. debt to equity.

MM adopt the arbitration process to prove their theory. Suppose two firms, one using debt capital (L – Levered firm) and another not using any debt capital (U – Un-levered firm) are identical in all other aspects. EBIT = \$2,00,000; Debt used \$1,00,000 with a coupon of 10%. Let the equity capitalization of L be 16% and of U be 12.5%. Then the value and Ke of the firms shall be as shown below:

	L (\$)	U (\$)
EBIT	2,00,000	2,00,000
Less Debt interest	1,00,000	-
EAI	1,00,000	2,00,000
K_e	16%	12.5%
$E = EAI/K_e$	6,25,000	16,00,000
D	10,000	-
V = E + D	16,25,000	16,00,000
$K_o = EBIT/V$	12.3%	12.5%

The levered firm is having less K_o and higher value than the un-levered firm. But this situation will not last long and the difference will be ironed out over a period by a process of arbitration.

Here L's shares are commanding a higher market price. So, investors will begin to sell the shares. Say 'A' is holding 1% of shares of L. His present income is 1% of $1,00,000 or $1000. By selling his holding he realizes $6250.

To buy 1% of shares in U, whose shares are under priced, 'A' needs 1% of 16,00,000 or 16,000. Right now he has $6250 from sale of his share holding in 'L'. So additional sum =($ 16000 – $6250)= $9750, is needed by him which he has to borrow at 10%. It is assumed that 'A' can borrow at the rate companies do borrow and 'A' need not feel uncomfortable with such personal borrowing. And with the $16,000, now he has, A buys 1% of shares in U. His gross income will be 1% of income of that company which is $2,00,000. So he earns $2000. Out of this $2000, he has to pay interest of $975 (i.e., 10% borrowed sum $9750) . His net income is, therefore= $2000 – $975 = $1025. This is greater than the income which he used to get on his share holding in L, namely $1000. The additional income of this arbitrage process drives more investors to sell their holding in 'L' and buy shares of 'U'. Due to selling pressure price of shares of 'L' falls and due to buying pressure price of shares of 'U' rises and that the initial position of price of shares of 'L' being higher than that of 'U' is no longer existing in course of continued arbitrage. Thus, in the long run, whether a firm is levered or un-levered, i.e., whether one uses debt or not, value and overall cost of capital cannot be influenced by this factor, other things remaining constant. Thus this is similar to NOI theory.

10.5 M.M Approach *(With Corporate Taxation)*

If corporate taxes are there, value of the levered firm will be higher and overall cost of capital of the firm will be less than those of an un-levered firm. That, $V_l = V_u + DT$, where V_l = value of levered firm, V_u = value of un-levered firm D= Debt capital employed by levered firm, T = Corporate Tax Rate and DT is the value of debt times corporate tax rate. So, to the extent of debt multiplied by tax rate, the levered firm is going high in value as against the un-levered firm.

10.6 Traditional Theory

As per traditional theory of capital structure, upto certain level of leverage, Ko declines, afterwards it increases. In other words, there is a defined optimum capital structure. At the optimum capital structure, marginal real cost of debt is equal to the marginal real cost of equity. For a debt equity ratio before the optimum level, marginal real cost of debt is lower than that of equity and beyond optimum level of debt equity, marginal real cost of debt is more than that of equity.

K_e is rising with leverage, while K_d is constant and K_o initially sloping down. Once K_d starts rising, K_o starts rising. The lowest point of K_o is the optimum capital structure.

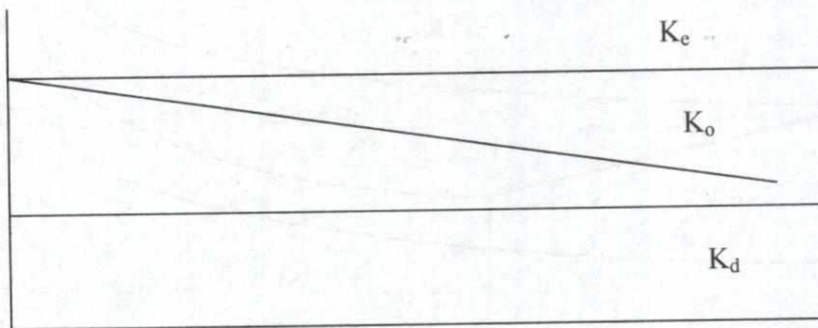
10.7 Limitations of Capital Structure Theories

First the assumption that K_d remains constant for all levels of leverage is not right. As debt rises K_d is likely to rise. Second, under MM theory, the individual has to go for personal debt to effect the arbitrage process. Such practice may not be liked by all investors. Asking a person to go for a leveraged portfolio may not be comfortably received. Third, for personal loan rate of interest is generally higher than on corporate borrowings. Hence the incentive for arbitrage is wiped out. Fourth, the assumption of perfect competition is no good. Fifth some corporate investors cannot go for leverage portfolio and that arbitrage process cannot take place. Most assumptions of the theories are bordering around unreality.

10.8. Significance Oof Capital Strucutre Analysis

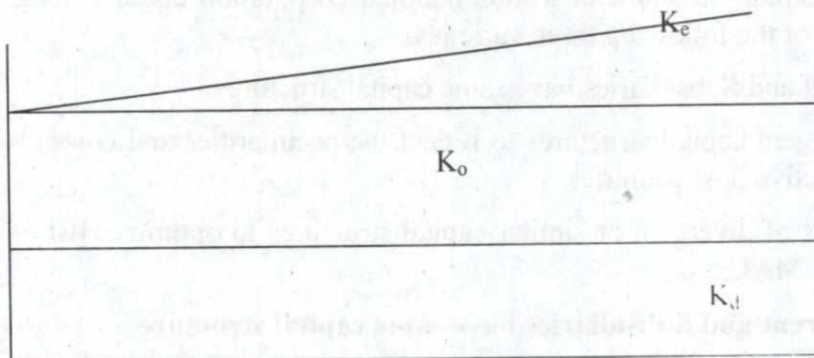
In a world of corporate taxation, capital structure analysis is relevant. It helps firms to have optimum capital structure. More the tax rate, more debt will help maximizing value of the business. Yet, there is a limit, beyond which debt capital induced leverage benefit may be eaten away by enhanced financial and business risk requiring the firm to pay more interest on debt as well as more reward to equity investors.

i. Net Income Theory :



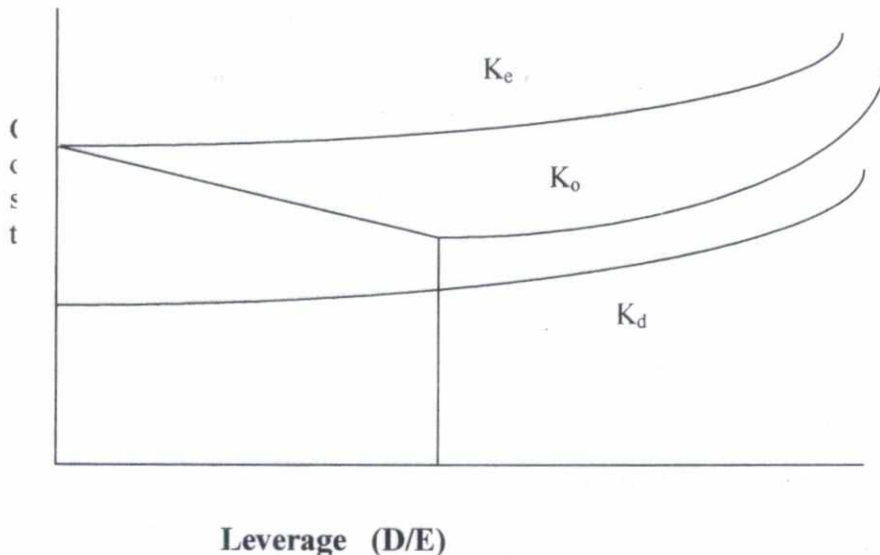
Leverage (D/E)

ii. Net Operating Income Theory:



Leverage (D/E)

iii. Traditional Theory



Leverage (D/E)

10.9 Capital structure of MNC

The capital structure of a multinational corporation could belong to any one or more of the following three varieties:

i) Parent and Subsidiaries have same capital structure

ii) Divergent capital structures to reflect the peculiarities and compulsions of respective host countries.

iii) A mix of divergent or similar capital structures to optimize cost of capital of the MNC.

10.9.1. Parent and Subsidiaries have same capital structure

The MNC following a uniform capital structure for the Parent and all Subsidiaries, perhaps is very obsessed with uniformity. It may give the comfort of familiarity, but definitely not the best combination of funds. In the case of fully owned subsidiaries this may be possible. And in that case, funds come from the parent fully. And the parent can put the label on the fund as it deem fit. And

make it uniform for all such subsidiaries. It may also mean a balanced capital structure evolved over time and scrupulously followed by all. Besides, the parent MNC may be unwilling to assume financial risk by allowing the subsidiaries to chalk out own capital structure, because for any untoward event, arising from subsidiaries' financial irresponsibility, it is the parent's name that is going to be involved, despite corporate veils. Can subsidiaries and parent have the capital structure? No. Because laws of countries on allowing foreign stake holding are different, limiting foreign stake holding. So, things are different.

10.9.2. Divergent capital structures to reflect the legal peculiarities and compulsions of respective host countries.

The MNC does not enjoy the latitude to decide the capital structure of its subsidiaries and bows to legal regimes of the host countries where the units are located. This is perhaps the least preferred scenario by the MNC. There is neither simplicity nor economics. Perhaps the benefit of experiencing diverse capital structures cannot be ruled out.

Countries permit foreign shareholding to some limited levels only, that too varying among different sectors. Price Waterhouse has collated some detail on this and the same are given in table below.

Country	Level of foreign stake in selected sectors
Australia	10% in banks, 20% in broadcasting, and 50% in new mining
Canada	25% in banks/insurance, 20% in broadcasting,
China	Foreigners can have only B shares, locals the A shares
France, Korea	Limited to 20%
India, Indonesia, Mexico	Limited to 49%
Japan	25 – 50% for several major firms
Malaysia	20% in banks and 30% in natural resources
Spain	50% in non-defence and media sectors
Sweden	20% of voting shares and 40% of total equity

Thus, the capital structure of parent and subsidiaries cannot be solely decided by the MNC Board.

So, divergent capital structure is generally the order amongst the group entities.

10.9.3. A mix of divergent or similar capital structures to optimize cost of capital of the MNC.

Subject to legal restrictions, where they exist, the MNC can think of capital structure or structures that optimize overall cost of capital. This is the thing that normally prevails. The subsidiaries are allowed to optimize its capital structure according to local conditions. Subsidiaries ill be allowed to seek funds globally, including the host country and it can leverage on the parent's name as well. This financial independency to subsidiaries forces them to work smart. If there is few recklessness incidents that will be separately dealt with.

11. DEBT VS EQUITY FLOW ANALYSIS

Now cash flow analysis of debt and equity alternatives is attempted to know which has an edge over the other.

11.1 Debt Vs Equity Cash Flow Illustration:

Suppose a firm has estimated that, $ 1 mn working capital addition will give a 20% after tax (but before interest payments) = $ 200,000 return, for a foreseeable future. This $ 1 mn it can raise as a market loan @ 10% p.a. or it can raise equity fund from public. Let the corporate taxation be 50%. Let debt repayment be $ 100,000 every year, in addition to payment of interest on outstanding loan during the year. The **debt Vs equity** position can be evaluated as below, taking expected cost of equity at 15%.

Cash Flow in Debt Alternative

Year	*Loan Repaid*	*Interest*	*Tax Shred*	*Balance of cash Profit on hand*	*Tax Shield Plus Balance of cash profit*
1	100000	100000	50000	0	50000
2	100000	90000	45000	10000	55000
3	100000	80000	40000	20000	60000
4	100000	70000	35000	30000	65000

5	100000	60000	30000	40000	70000
6	100000	50000	25000	50000	75000
7	100000	40000	20000	60000	80000
8	100000	30000	15000	70000	85000
9	100000	20000	10000	80000	90000
10	100000	10000	5000	90000	95000

Explanation: Out of $ 2,00,000 after tax, but before interest profit, $ 1,00,000 is paid every year for debt repayment. As principal gets repaid in installment, yearly, interest payment reduces as given in column 3. Tax shield on interest paid is claimed @ 50%. Balance of profit = After tax profit - Principal repaid - Interest paid. First year it is zero. Subsequently, as interest payment gets reduced, a balance of profit is left over. The cash flow is tax shield plus balance of profits. This is given in-the last column. By using an appropriate discount rate, the present value of tills cash flow stream can be worked out.

The equity financing will involve the following scenario of after dividend payment @ 15%.

Cash Flow in Equity Alternative

Year	After Tax Profit	Dividend @ 15%	Balance of Profit
1	200000	150000	50000
2	200000	150000	50000
3	200000	150000	50000
4	200000	150000	50000
5	200000	150000	50000
6	200000	150000	50000
7	200000	150000	50000
8	200000	150000	50000
9	200000	150000	50000
10	200000	. 50000	50000

For the firm, it is clearly the debt alternatively works well as net cash flow under debt alternative rises from \$ 50000 in year 1 to \$95000 in year 10. Afterwards, entire amount of after tax profit of \$ 200000 is the cash inflow. But, in the equity alternative, forever the cash flow for the firm is \$50000, if the expected dividend rate is constant at 15%. If we assume, a lower dividend rate, say 12%, a higher cash inflow will result. The amount will be \$ 80000 in such case (i.e., \$ 200000 - \$ 120000). If we take, 11% as the discount rate, the present value of this perpetual sum will be \$ 80000/0.11 = \$ 727,273. Whereas the present value of cash flow from debt alternative is: present value of the varying cash inflows upto the 10th year plus present value of perpetual cash flow of \$ 200,000 since 11^{th} year. This is equal to = \$ 402 120 + \$ 640000 = \$ 1,042,120. This is far more than present value of cash flows from the equity alternative worked out earlier as \$ 727,273.

All goes well debt financing as long as post tax cost of debt is less than overall rate of earnings. Otherwise, it is equity that is good for a firm.

11.2 Debt Vs Equity in a Nation's Context

What are the implications of debt finance from a nation's perspective? And what are the implications of equity finance from nation's point of view?

Our discussion has to be done on three levels: domestic debt and equity; international private debt and private equity; international official debt and international private equity.

Domestic Debt Vs Equity: From nation's point of view, domestic debt and equity markets are equally important. Debt market is intended for risk averse investors. Majority of investors belongs to this class. To tap the savings of this class of investors, debt instruments are needed. There must be bodies which float the debt instruments to raise debt capital. Incidentally, government of any nation is one of the biggest borrowers, thanks to the fiscal excesses. So, a deep debt market is good for both savers and borrowers.

Domestic equity market growth indicates a nation's excellence as to channelising public saving into riskier instruments. Risk-seeking is an entrepreneurial character. So, equity market development is an index of development of right kind of entrepreneurship. From nation's exchequer's view point, debt serving does not give tax income. Of course, recipient of interest is taxed on interest income. As equity servicing comes from post-tax profit, tax

kitty of government bulges with equity financing. Besides there may be tax on distributed dividend.

Illustration:

Suppose two corporate bodies are identical, saving their capital structure. Let their assists be $ l0 mn each and return on investment 20% pre-tax. One firm is all equity and the other is having a debt-equity ratio of 1:1, debt carrying an interest of 10% p.a. The Corporate tax rate is 40% and distributed dividend tax is 10% of dividend. Personal income tax is 30%. Dividend is not taxed again. The tax revenue to the nation will be as follows:

Details	*All equity firm*	*Levered firm*
(1) Profit before interest and tax $	2,000,000	2,000,000
(2) Less interest (10% on $5mn)	—	500,000
(3) Profit after interest	2,000,000	1,500,000
(4)Tax@4Q%	800,000	600,000
(5) Profit after tax	1,200,000	900,000
(6) Dividend paid	1,000,000	500,000
(7) Profit after dividend	200,000	400,000
(8) Tax on distributed dividend @ 10% dividend	100,000	50,000
(9) Balance of profit	100,000	350,000
(10) personal income tax on interest @30% of interest	—	150,000
Total tax to exchequer (4)+(8)+(10)	900,000	800,000

Tax laws, framed by Government favour debt financing by companies. But actually Government's tax collections swell with equity financing.

11.3 International Private Debt Vs International Private Equity

For a nation, foreign private capital flows, debt or equity have implications because repatriation of interest/dividend entails forex outgo. If the domestic currency depreciates, domestic currency cost of foreign finance shall

rise. But, risk of debt servicing rests with the fund raising entities. Foreign investors do not look up to the Government in case of default or other problems.

The nation gets all the benefits of inflow of capital, without the botheration for the government to service the foreign capital inflows. Third world countries now have started realizing the benefit of this private foreign capital. And increasingly try to woo them more and more.

11. 4 Foreign Official Debt Vs Foreign Private Equity

Foreign official debt is obtained from multilateral institutions or through bilateral negotiations. Foreign official debt adds to the Government's debt servicing responsibility. External debt trap of most developing countries has resulted from excessive foreign official debts, not rightfully employed by borrowing countries. Against this, foreign private equity is welcome, because the obligation of debt repayment and servicing is not there.

Foreign private equity can be attracted only if rewards are at optimal level given the risk. At times of crisis, like the Mexican crisis of 1994-95 and South East Asian crisis of 1997-98, foreign private equity refuses to be wood. Foreign official debt from multilateral bodies come as last resort finance with high interest. Foreign private equity is a fair-weather friend. Foreign official equity is a friend in need. But the fund must be wisely invested in income generating assets that support income generating activities of the subjects of the nation.

Questions

1. Examine the features of international equity financing and the major forms of the same.
2. Present the features of GDRs/ADRs and evaluate them as an instrument of financing.
3. Explain the procedure for issue of GDRs/ADRs and assess the role of different capital market participants facilitating the float of GDRs/ADRs
4. State the need for and conditions for Indian companies to launch GDRs in global market.
5. Present the significance of overseas debt finance and the types of bonds available.
6. Explain the features of bond market, with. respect to international bonds.
7. What are Notes and Warrants? Present the different debt types of the same.

8. How do Indian firms tap global debt market in the recent years.
9. Explain the different forms of short-term financial instruments.
10. Explain relative merits and differences between global debt and global equity finance for corporates.
11. Debt capital scores more than equity in term's of contribution to firm's net wealth, Do you agree? Explain with an example.
12. Evaluate foreign debt and foreign equity from a nation's point of view.
13. Explain the different concepts of cost of capital and their significance in financing decision.
14. Present the opportunity cost of capital for retained earnings and for trade credit with cash discount option.
15. A firm has issued, 5 year $ 500 bonds at a net price of $ 460. The bonds carry a coupon of 10% p.a. and redeemable at 5% premium. Tax rate is 34%. Find the pre-tax and post-tax cost of the bonds.
16. A firm has floated preference shares redeemable at par after 7 years, face value $. 1000, coupon dividend 10% and issue expenses 3%. Find the cost of the shares.
17. XYZ Ltd. has a paid up capital of Rs. 6 crs of equity shares of Rs. 10 each. Its shares are currently quoting at Rs. 45. The company has declared dividend as follows for past 5 years.

Year	1	2	3	4	5
Dividend (Rs. crs)	9	10.5	15	18	21

Find the cost of equity as per the **D + g** approach.

18. Given K_e = 18%, Floatation cost 3% and tax bracket of shareholders of a firm at 20%. Find the cost of retained earnings.
19. A firm employs the following capital funds at costs mentioned against each. Find the weighted cost as per book and market weights.

($ million)

Capital	*Cost (%)*	*Book value*	*Market value*
Equity share	18	8	12
Preference share	15	3	2
Bonds (pre tax)	14	4	4

Corporate tax rate is 34%. Find the overall cost of capital under book and market weights.

20. ABC Ltd. is setting up a project with a capital outlay of Rs. 60 lakhs and it has the following alternatives in financing the project.

Alternative I = 100% Equity finance

Alternative II = Debt plus Equity in the ratio of: 2:1

The K_d is 11% p.a. and corporate tax rate is 40%. Calculate the EBIT at which both the alternatives provide the same EPS.

21. ABC Ltd. is a 100% equity firm with a K_e of 19%. XYZ Ltd. is similar to ABC, except in capital mix, has a debt - equity ratio of 2:1 and its Kd is 11%. Find the K_e of XYZ Ltd. as per MM Hypothesis and find the overall average cost of capital.

[Hint: $K_{e,L} = K_{e,u} + (K_{e,u} - K_d)D/E$]

22. The K_e and K_d at different levels of D/E ratio are as follows:

D/E	K_e(%)	K_d(%)
0.0	21	0
0.4	21	12
0.8	22	12
1.2	22	14
1.6	24	16
2.0	24	16
2.4	28	20

Find the optimum capital structure.

23. Present the factors influencing the capital structure of a firm.

24. Compute specific costs of capital (pre-tax and post-tax if need be) in the following cases:

i) \$500 face value bond carries a coupon of 9% per year. Its issue price is \$475 and after 5 years will be redeemed at par. The tax rate is 35%.

ii) A company is thinking of floating redeemable preferred stock. Preferred stock of **8 year** tenure with face value \$50 and a coupon dividend of 13% currently sells at a net price of \$46. Assume redemption at face value after 8 years.

iii) The four-year period dividend history of a stock, from earliest year to the just concluded year is: $1.6, $2, $2.5 and $3.125. Currently the stock sells at a price of $78.125.

iv) As to cost of retained earnings, take the cost of equity computed in case (iii) above and take the floatation cost as 6% and marginal rate of taxation of shareholders as 30%.

25. Xenix LLc gives the following details to you and seeks your help in computing its Overall Cost of Capital based on Market and Book weights. Earnings available for distribution to equity stock holders amount to: $792,000. Floatation cost of equity is 6% of issue price. Marginal tax rate of shareholders is 35%.

Source of Capital	Book Value($)	Market Value($)
Equity share capital	400,000	4,400,000
Retained earnings	500,000	-
12%Preference share capital	200,000	200,000
11% Debentures	1,400,000	1,400,000
Total	**2,500,000**	**6,000,000**

26. Three firms, namely, A, B and C, are identical in every respect except their capital structure. A is un-levered and others are levered. The relevant details are as under:

Details:	**A**	**B**	**C**
Debt capital ($mn)	0	1.5	2.8
Value of the firm ($mn)	12.5	?	?

Corporate tax rate is 30%. Find the values of B and C.

27. A firm has estimated that, $2 mn working capital addition will give a 25% after tax (but before interest payments) = $ 500,000 return. for a foreseeable future. This $2 mn it can raise as a market loan @ 10% p.a. or it can raise equity fund from public. The corporate taxation be 40%. Let debt repayment be $ 200,000 every year, in addition to payment of interest on outstanding loan during the year. The *debt Vs equity* position can be evaluated as below, taking expected cost of equity at 16%.

MODEL QUESTION PAPER

Paper 4.3 : MULTINATIONAL FINANCIAL MANAGEMENT

Time: 3 Hours

Maximum 100 Marks

PART-A (5x 8 = 40 marks)

Answer any **Five** questions

All questions carry equal marks

1. Explain the concept and use of cost of capital.
2. A soft-drinks manufacturing company buys a large number of pallets every year which it uses in the warehousing of its bottled products. A local vendor has offered the following discount schedule for pallets:

Order quantity	Unit price
1 – 499	Rs. 10.00
500 – 749	Rs. 9.25
750 and above	Rs. 8.75

The average yearly replacement is 2400 pallets. The cost per order is Rs. 100 and its carrying costs are 12 per cent of the average inventory. What quantity should be ordered?

3. Using Miller – Orr model estimate upper and optimum cash holding, given: Transaction cost = \$48. 667, σ^2 = 365,000 and given annual interest rate of 10%. Taking half of optimum size as the lower limit, draw a graph showing all the three levels indicating the values.
4. The opportunity cost of funds to an MNC parent is 11%, its deposit fetches 8% and it pays a marginal tax rate 30%. It has an affiliate in the marginal tax rate bracket of 45%. Its cost of back to back loan 9.5% (with a spread of 150 basis points over deposit rate of the bank). Expected currency depreciation of the affiliate's country is 10% over a year. Find the effective cost of back to back loan
5. Three projects involve a total outlay of \$2000,000. Investment in any one project can be any amount, subject to the total outlay. The estimated return from the projects are 14%, 16% and 20%. The std. deviation of returns are 5%, 10% and 10%. The correlation coefficients are 1&2: 0.4, 2&3: 0.6 and

1&3: 0.2. A portfolio with weight 0.2, 0.3 and 0.5 for the three projects, respectively, is constructed. Find the portfolio return and risk.

6. How will an MNC deal with risk of expropriation?
7. Examine the sub-systems of multinational financial system and their features and role.
8. Bring out the recent contributions of the European Union Financial Market to global financial scenario.

PART-B (4x 15 = 60 marks)

Answer any **Four** questions

All questions carry equal marks

9. Explain the procedure for issue of GDRs/ADRs and assess the role of different capital market participants facilitating the float of GDRs/ADRs
10. The capital structure of the parent multinational corporation and its subsidiaries could be same, or different. Discuss the merits of different situations.
11. Discuss the use of leading and lagging in cash management. How is the interest rate scene relevant in designing global remittances under leading and lagging.
12. A firm has estimated that, $2 mn working capital addition will give a 25% after tax (but before interest payments) = $ 500,000 return, for a foreseeable future. This $2 mn it can raise as a market loan @ 10% p.a. or it can raise equity fund from public. The corporate taxation be 40%. Let debt repayment be $ 200,000 every year, in addition to payment of interest on outstanding loan during the year. The debt Vs equity position can be evaluated as below, taking expected cost of equity at 16%. How PERT helps in scheduling? What is early start schedule and late start schedule?
13. Explain the Strategies of FDI followed by the MNCs and bring out the Opportunities and Trend in FDI in the recent years in India.
14. What is the significance of multinational finance management in the present context of integrated financial markets?

15. A firm is currently using a machine purchased two years ago for $ 1400,000. It has further 5 years of life. It is considering replacing of the machine with a new one, which will cost $ 2800,000. Cost of installation $ 200.000. Increase in working capital is $ 400,000. The profits before tax and depreciation are as follows for the two machines.

Year	1	2	3	4	5
Current Machine ($.)	600,000	600,000	600,000	600,000	600,000
New Machine ($.)	1000,000	1200,000	1400,000	1800,000	2000,000

The firm adopts fixed installment method of depreciation. Tax rate is 40% and capital gain tax is 10% on inflation un-adjusted capital gain.

Is it desirable to replace the current machine by the new one, taking the resale value of old machine at $ 1600,000 at present and using, PBP and NPV? (For NPV method take 10% as discount rate and for PBP method cutoff period is 3.5 years).

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